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DEPARTMENT OF THE ARMY FIELD MANUAL

NONDIVISIONAL COMBAT AVIATION BATTALION, GROUP, AND BRIGADE



HEADQUARTERS, DEPARTMENT OF THE ARMY
APRIL 1968

FIELD MANUAL

No. 1-20 (TEST)

HEADQUARTERS
DEPARTMENT OF THE ARMY
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NONDIVISIONAL COMBAT AVIATION BATTALION, GROUP, AND BRIGADE

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CHAPTER 1

INTRODUCTION

1-1. Purpose and Scope

a. This manual provides guidance to commanders and staff officers of the nondivisional combat aviation battalion, group, and brigade, and to commanders and staff officers of land combat forces supported by these aviation organizations.

b. Doctrine contained in this manual covers the operation of units which provide nondivisional Army aviation *combat support* to land forces. The combat *service* support functions of Army aviation units in the field army are discussed in FM 55-9 and FM 55-46.

c. Subject to modification to meet the requirements of operational environments and the intensity of conflict, the operations described in this manual are capable of worldwide application.

d. Guidance is provided for—

(1) General war, to include employment of and protection from nuclear munitions, and chemical, biological, and radiological agents.

(2) Limited war.

(3) Cold war, to include stability operations.

1-2. Recommendations to Improve Clarity or Accuracy

Users of this manual are encouraged to submit recommendations to improve its clarity or accuracy. Comments should be keyed to the specific page, paragraph, and line of text in which the change is recommended. Reasons should be provided for each comment to insure understanding and complete evaluation. Comments should be forwarded directly to the Commanding Officer, United States Army Combat Developments Command Aviation Agency, Fort Rucker, Alabama 36360. Originators of proposed changes which would constitute a significant modification of approved Army doctrine may send an information copy, through command channels, to the Commanding General, United States Army Combat Developments Command, Fort Belvoir, Virginia 22060, to facilitate review and followup.

CHAPTER 2

MISSIONS AND FUNCTIONS

Section I. INTRODUCTION

2-1. General

This chapter describes the nondivisional combat aviation battalion, group, and brigade which provide aviation combat support to field army, corps, and divisional organizations conducting land combat operations. These aviation organizations are an integral part of the combat support system designed to provide immediate and effective aviation support throughout the combat zone. The composition of a type aviation brigade, to include type aviation group and battalion elements, is shown in figure 2-1.

2-2. Capabilities and Limitations

a. Capabilities. The headquarters and headquarters company (HHC) of the nondivisional combat aviation battalion, group, or brigade is staffed to provide command, control, and planning necessary for the employment of its assigned and attached units. Aviation elements are assigned or attached to the HHC to provide the Army aviation capabilities needed by the ground force which is to be supported.

b. Limitations. Limitations of the battalion, group, and brigade include those limitations common to organizations which perform their

missions primarily by use of aircraft. Several examples are—

- (1) Operational capabilities are reduced during adverse weather conditions.
- (2) Operations require local air superiority.
- (3) Organic local security is limited and may require augmentation by other troops.
- (4) These organizations are vulnerable to enemy air defense operations, electronic countermeasures, and deceptive measures.

2-3. Combat Service Support

Freedom of use permits a commander to employ organic, attached, or supporting Army aviation units in the way that contributes most to the successful accomplishment of his mission. This can mean that aviation units which are primarily combat support oriented can be called upon to perform combat *service* support tasks when the situation requires. Army aviation units, especially those possessing utility or transport helicopters, are capable of making significant contributions to requirements for the transport of personnel and material in both the combat support and combat service support modes. Army air transport operations are discussed in detail in FM 55-46.

Section II. THE BATTALION

2-4. Mission and Responsibilities

The mission of the nondivisional combat aviation battalion is to provide tactical airlift of combat units, air resupply, armed aerial escort, and aerial battlefield surveillance in support of ground combat operations. The battalion also provides command and control aircraft, aug-

ments medical evacuation means, and provides direct fire support to include suppressive and defensive fires. Functions of the battalion's headquarters and headquarters company (HHC) are discussed in chapter 3.

2-5. Assignment

The combat aviation battalion may be as-

signed to an aviation group, to an aviation brigade, or to a maneuver unit headquarters. The battalion may also operate independently in support of ground tactical operations.

2-6. Composition

There is no fixed composition for the nondivisional combat aviation battalion. The battalion may be structured to include any mix of units under operational control of the battalion's parent group. The composition of a specific battalion is largely dependent upon the factors of assigned mission, operational environment, aviation resources available, and composition of hostile forces most likely to be encountered. Figure 2-1 contains an illustration of one of the ways in which the battalion can be structured to accomplish a specific mission.

2-7. Employment

a. The nondivisional combat aviation battalion is tactically structured to provide aviation support to land forces conducting operations in the combat zone. It has the inherent capability of bypassing obstacles in the movement of elements engaged in land combat operations. Its armed helicopters can deliver aerial firepower on a highly responsive basis. This enhances the mobility, maneuverability, and firepower of supported forces engaged in land warfare. The battalion has the capability of providing timely information on enemy activity and movement. It can transport additional troops and materiel to sustain positions already under the control of friendly elements, and can airlift combat assault elements to block avenues of approach and likely routes of escape.

b. Factors to be considered when preparing for the employment of the battalion include the following:

- (1) The mission of the combat force to be supported.
- (2) Command and control relationships.
- (3) Ground tactical plan of the supported commander.
- (4) Enemy intelligence and air defense capability.
- (5) Internal defense agreements.

- (6) Size of the operation.
- (7) Expected duration of the operation.
- (8) Availability of aviation assets.
- (9) Capability of organic aviation units.
- (10) Mobility requirements.
- (11) Area of operations.
- (12) Weather and terrain.
- (13) Special equipment requirements.
- (14) Availability of airfields or heliports.
- (15) Availability of POL and class V supply points.
- (16) Availability of nonorganic aircraft maintenance support.
- (17) Medical evacuation radio nets and locations of medical treatment facilities.

c. The battalion is often remotely located from any other aviation headquarters while conducting an independent or semi-independent support mission. Regardless of the location, the aviation battalion must retain a rapid reaction capability.

2-8. Aircraft Maintenance

A transportation aircraft maintenance detachment may be attached through battalion to the aviation company to provide aircraft maintenance at the direct support (DS) level. When this is the case, the maintenance detachment receives its backup support from a DS aircraft maintenance company. If a transportation aircraft maintenance detachment is not attached, the aviation company will receive its DS level maintenance from the DS aircraft maintenance company. FM 54-8 (TEST) describes the organization and employment of combat service support units in both the combat zone and the communications zone.

2-9. Weather Information

Weather conditions can greatly affect aircraft operations and must be considered in operational planning. While low ceilings and limited visibility conditions may restrict aircraft operations, such conditions may be used to advantage in shielding aircraft from enemy observation and permitting the element of surprise. Weather information is received from the air weather service detachment of the U.S. Air Force.

Section III. THE GROUP

2-10. Mission and Responsibilities

The mission of the nondivisional combat aviation group is to provide aviation support to land forces engaged in combat operations under all conditions of land warfare. Depending on its mission, the group commands or exercises command less operational control over those units attached to it. Functions of the group's HHC are discussed in chapter 4.

2-11. Assignment

The assignment of the group depends upon the mission, type and expected duration of the operation, geographic area of operation, and the composition of units it is to support. The group normally will be assigned at corps or higher level to provide maximum support, and to fully utilize the combat potential of the group's assets.

2-12. Composition

The group consists of an HHC and two or more combat aviation battalions. Composition of the group is not fixed, but consists of aviation battalions and separate aviation companies most suited to assist in accomplishment of the supported unit's mission. A type group is included in figure 2-1.

2-13. Employment

a. The group is employed as directed by the supported commander. The group headquarters normally is located near the supported headquarters, and provides the tactical command

and control required for employment of attached or assigned aviation units. Adequate communications and personnel are available to enable to group headquarters to function as an emergency or alternate Army aviation staff section.

b. The group headquarters is staffed and equipped to be a tactical command and control headquarters. Personnel are provided to supervise the administrative and logistical functions of subordinate units.

c. The group headquarters reduces the supported unit commander's span of control. When two or more aviation battalions are allocated to support the land combat force, the group commander will supervise the activities of these aviation battalions. This reduces to one the number of aviation unit headquarters dealing with the supported unit headquarters.

d. The group operates from dispersed locations within the tactical area of operation, and generally is located in the vicinity of a supported unit to gain the necessary security.

e. Mission-type orders are used between aviation units for operations to insure rapid response to aviation requirements of the supported unit.

f. Effectiveness of aviation operations is increased by use of SOP. Details covering the conduct of all tasks within the capabilities of the group should be outlined in the unit SOP.

Section IV. THE BRIGADE

2-14. Mission and Responsibilities

a. The mission of the nondivisional combat aviation brigade is to provide tactical airlift of combat units, aerial battlefield surveillance, aerial fire support, aerial resupply of units engaged in combat operations, and other combat support as required.

b. Responsibilities of the brigade include planning for combat operations in conjunction

with higher headquarters, to include allocation of aviation assets and administrative supervision of subordinate units. Functions of the brigade HHC are discussed in chapter 5.

2-15. Assignment

The assignment of the brigade is dependent upon the extent to which Army aviation support is required in an area of operations. Normally, the brigade is assigned to a corps or

field army. It operates from the most forward area commensurate with its assignment to allow immediate responsiveness to the needs of the supported commander.

2-16. Composition

a. A typical aviation brigade consists of an HHC and two or more combat aviation groups. A type brigade is shown in figure 2-1.

b. The composition and strength of units assigned to the brigade are determined by the theater army commander. His basis for decision normally is dependent upon—

(1) Plans for Army aviation to support future operations.

(2) The characteristics of the area of operations as they affect intelligence, mobility, and firepower.

(3) The type and composition of hostile forces most likely to be encountered.

2-17. Employment

a. The brigade normally is employed in general support of, and receives missions from, a corps or field army. The brigade subsequently assigns missions to those of its units most capable of performing the missions. Subordinate units of the brigade are attached or placed in

direct support of committed tactical units for operations. Additional aviation support may be provided by units in general support or reinforcing roles.

b. Elements of the brigade operate from dispersed locations within the assigned area. In a stability operations environment, the brigade's operational units are normally collocated with maneuver units for security and to provide immediately responsive support.

c. To insure maximum responsiveness to changing tactical situations, mission-type orders are used between the brigade headquarters and its subordinate groups. This responsiveness is attained through a high state of training in airmobile techniques and procedures that are known and understood by both supporting and supported units. Aviation procedures for support of tactical operations are essentially the same whether they are offensive, defensive, retrograde, or special operations. These procedures are implemented by aviation unit commanders, through either personal commander contact or liaison teams. Thorough coordination is required to insure that the tactical mission is accomplished rapidly and effectively.

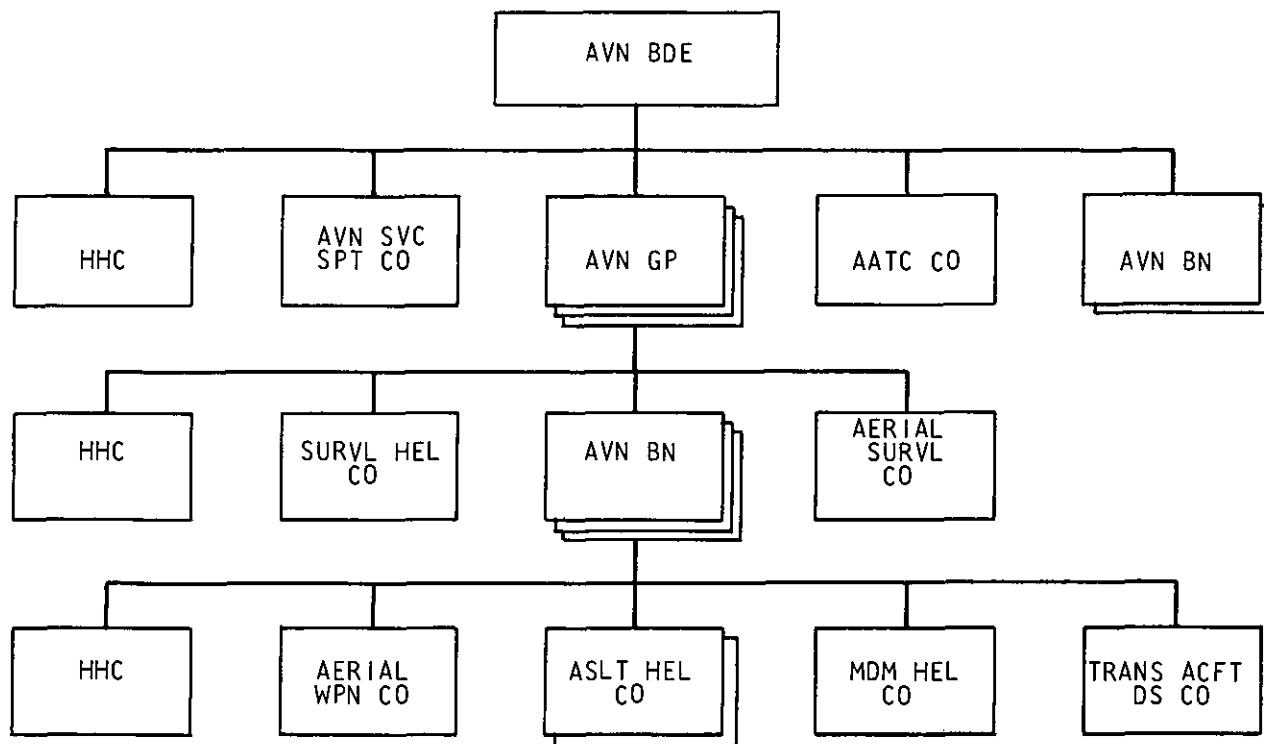


Figure 2-1. Type nondivisional combat aviation brigade.

CHAPTER 3

HEADQUARTERS AND HEADQUARTERS COMPANY, NONDIVISIONAL COMBAT AVIATION BATTALION

Section I. GENERAL

3-1. Mission

The mission of the HHC of the nondivisional combat aviation battalion is to provide command, control, staff planning, supervision, and coordination of all assigned and attached units, and to employ these units in support of ground operations incidental to combat.

3-2. Assignment

When the primary mission is tactical transport, the HHC is assigned to the aviation group of the corps or field army.

3-3. Composition

The composition of the battalion HHC is shown in figure 3-1.

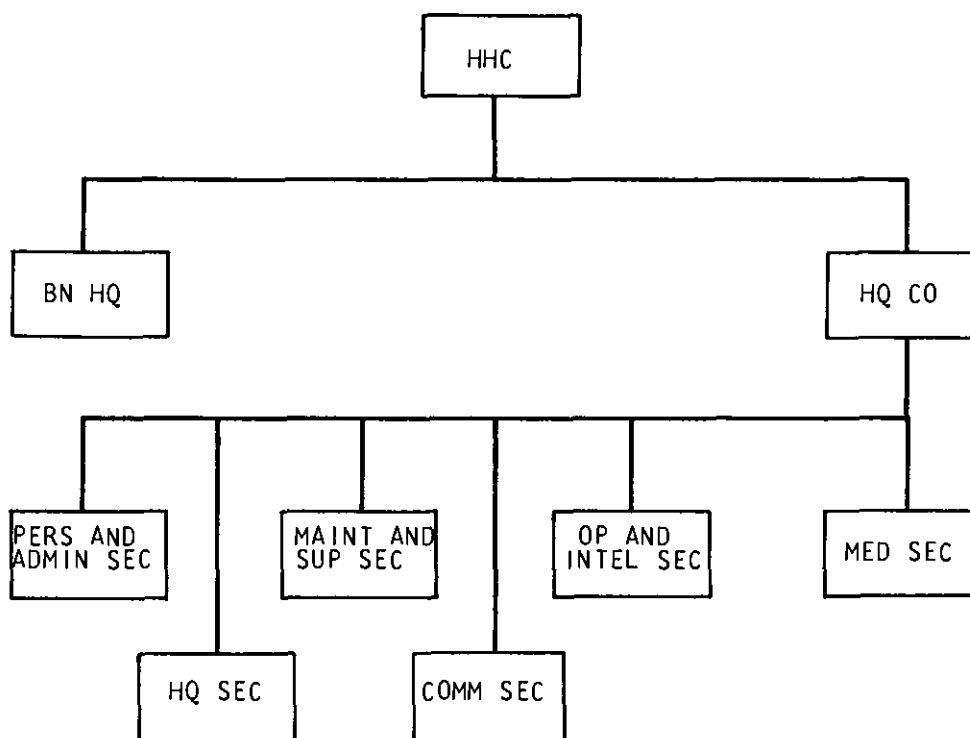


Figure 3-1. Headquarters and headquarters company, nondivisional combat aviation battalion.

Section II. PLANNING AND COORDINATION

3-4. General

a. The planning and coordination necessary for accomplishment of the mission will vary according to the ground tactical plan of the supported unit. The amount of detailed planning is directly proportional to the complexity of the assigned mission. All aspects of the assigned mission must be carefully weighed and studied so that planning and coordination will follow a logical sequence.

b. When the battalion is assigned a mission, the commander takes immediate steps to establish liaison with the unit which is to be supported. Coordination between the supporting and supported units is continuous and simultaneous with planning to insure that problem areas are identified and resolved as quickly as possible.

c. The aviation commander must keep abreast of the developing situation as it relates to his area of responsibility, and must insure that his subordinate units are always ready to respond to any requirements placed upon them by higher headquarters. He must be capable of structuring the battalion as necessary to accomplish its mission. Close and continuous liaison between staff sections is mandatory to insure complete and coordinated staffing during the planning phase. Well developed SOP are necessary to insure that planning is conducted in a rapid and thorough manner.

d. Operational requirements from higher headquarters usually are received by the battalion as mission-type orders. These orders are relayed to subordinate companies of the battalion in the same manner. The minimum time available for planning during tactical operations requires that the detailed planning be accomplished and mission-type orders prepared and issued as rapidly as possible. The aviation battalion commander and the ground combat

commander, with their designated staff personnel, should perform a visual aerial reconnaissance of the proposed landing zones (LZ's) immediately following the preliminary planning to allow maximum time for detailed planning and coordination. This aerial reconnaissance will insure that both the supported and supporting units know exactly where the LZ's are located and where the supporting artillery will be located.

e. The following planning factors must be specifically considered in every operation:

- (1) Aircraft availability.
- (2) Crew status.
- (3) Tactical situation.
- (4) Enemy situation, location, capabilities, and limitations.
- (5) Terrain and weather.
- (6) Combat support availability.
- (7) Logistical requirements.

3-5. Planning Sequence

In airmobile operations, the planning sequence routinely follows the reverse chronological order. The plan of operation involving the airmobile phase is formulated from the final phase of the operation back through all stages of en route planning to the initial phase of the operation. The planning sequence for airmobile operations is discussed in detail in FM 57-35.

3-6. Coordination

Detailed coordination is conducted prior to the planning of any operation, and must be continued during the planning and execution stages to insure that last-minute changes in the tactical situation or support requirements are taken into consideration. Items involving resupply, refueling, rearming, aerial support, or medical evacuation must be coordinated prior to mission execution.

Section III. EMPLOYMENT

3-7. General

Each section of the battalion HHC is re-

sponsible for providing the necessary personnel and equipment to meet the administrative and

operational requirements of the battalion headquarters.

3-8. Battalion Headquarters

a. General. The battalion headquarters is organized to provide tactical command, control, and administrative supervision of assigned and attached units. In addition to the battalion unit staff, the commander is assisted by a special staff (FM 1-15) which normally includes the aviation safety officer, the aviation medical officer, and the aircraft maintenance officer. During operations such as stability operations, a civil affairs officer (S5) may be authorized. In the absence of a civil affairs officer, civil affairs functions are a staff responsibility of the battalion S3; however, the commander may appoint an officer to handle these functions on a full-time basis if no civil affairs officer is provided.

b. Employment. For any operation involving the battalion, the controlling headquarters normally will be the battalion headquarters. The battalion may be employed as a unit, or it may be fragmented to provide one or more smaller elements. Delegation of authority will be at the discretion of the battalion commander, and is normally based on the number of helicopters required for the operation and the extent to which battalion elements are fragmented and dispersed.

c. Duties of Personnel.

(1) *Battalion commander.* The aviation battalion commander has overall responsibility for the command and control of his battalion during training and combat. The commander meets his responsibilities through sound planning, timely decisions, effective orders, and personal leadership. The aviation battalion commander also has responsibility for advising the supported unit commander on the most effective means of utilizing the support capabilities of the aviation battalion.

(2) *Executive officer.* The executive officer assists the commander in the performance of command duties, and exercises command during the commander's absence. He is responsible for training the battalion staff to be capable of sustained operations 24 hours a day.

He announces procedures for action within the staff, and insures that instructions issued to the command are in accordance with the plans and policies of the battalion commander. He supervises and coordinates staff activities to insure that battalion efforts are supported by each member of the staff. He maintains close liaison with the representatives of subordinate units to insure timely and proper accomplishment of necessary support requirements. He insures that the handling of major administrative and logistical requirements is accomplished at battalion level to allow the subordinate unit commander maximum time for tactical planning and conduct of operations.

d. Functions of Sections. At battalion level, the detailed planning and coordination required for any operation are considered to be greater than at any other level of nondivisional aviation. In order to properly coordinate, plan, and execute an assigned mission, various sections are responsible for certain actions. The sections may include the following:

(1) *Personnel and administration (S1) section.* This section provides administrative support for the HHC of the battalion, and has staff responsibility for all matters pertaining to administration, awards and decorations, public information, and safety. The battalion S1 is the primary staff officer responsible for accomplishing these functions. The battalion aviation safety officer, who occupies a special staff position and is directly responsible to the battalion commander, may be collocated with this section.

(2) *Operations and intelligence (S2/S3) section.* Since their functions are complementary, the S2 and S3 sections may be collocated. However, whether collocated or not, the duties of each section are separate and distinct as follows:

(a) *Operations (S3).* The S3 is directly responsible to the commander for all matters pertaining to staff planning in preparation for an operation. He maintains close liaison with the other staff officers to insure that proper coordination is accomplished at all levels. He plans and supervises all training conducted in the battalion in accordance with guidance

from the next higher headquarters. The S3 supervises the activities of the battalion operations center. This center acts as a coordination point between higher or supported headquarters, and assigns missions to subordinate aviation elements. In this center, the assets of the battalion are structured to fulfill mission requirements from higher headquarters in support of ground tactical operations (app D). The pathfinder detachment, if attached, functions under the staff supervision of the S3.

(b) *Intelligence (S2)*. The battalion S2 is responsible for advising the commander, staff, subordinate units, and other interested agencies on the terrain, weather, and the enemy situation and capabilities. When a pathfinder detachment is attached, the pathfinder commander coordinates matters concerning the enemy, weather, and terrain with the S2. The S2 also supervises and trains battalion intelligence personnel, and exercises control over all intelligence activities of the battalion (FM 1-15). He reports all enemy jamming (to include type) and imitative communications-noncommunications deception to the technical warfare element in the tactical operations center (TOC) of the supported division or corps and to the S2/S3 at combat aviation group headquarters.

(3) *Communications section*. The signal officer is responsible to the commander on all matters pertaining to communications support, both internal and external, in the battalion. He normally functions as a special staff officer. The signal officer coordinates and directs the communications activities of organic and attached units operating in the battalion communications net, and supervises the battalion's avionics activities.

(4) *Medical section*. The medical section provides unit level medical service to personnel of the battalion. The surgeon is organizationally located on the staff of the commander and normally has operational control of the medical section.

(5) *Maintenance and supply (S4) section*. This section, under supervision of the battalion S4, is responsible for staff supervision and coordination of all maintenance, supply, evacua-

tion, and transportation activities within the battalion. The section has staff responsibility for overall aircraft and vehicle maintenance within the battalion, for coordinating the maintenance activities of the organic unit maintenance officers, and for coordination of the battalion's requirements for higher level maintenance support. The section also has staff responsibility for planning, coordinating, and supervising the operation of the logistical facilities of the battalion, and for insuring that nonorganic combat service support elements adequately support the plans of the command, and that they function according to the orders of higher commanders.

(6) *Headquarters section*. The headquarters section provides the battalion commander and staff with enlisted personnel for the battalion staff sections.

3-9. Headquarters Company

a. *General*. The headquarters company is responsible for providing administrative support for the battalion, as well as logistical support required by the headquarters. The normal individual responsibilities of assigned personnel include supply, quarters, and supervision of nonduty activities. The headquarters company maintains only those personnel records necessary to provide the commander with the status of personnel matters in the company. The headquarters company does not maintain administrative and financial records for which the personnel service company and finance direct support company have responsibility. Since this company's medical section is not designed to provide for the medical needs of the battalion headquarters, assigned personnel are satellited on an organic unit for medical support.

b. *Security*. The headquarters company commander, in coordination with the battalion executive officer, is responsible for the security and movement of the command post (CP). Local security forces will consist of personnel assigned to the battalion. These forces may be augmented with combat forces if the enemy threat dictates and additional forces are available.

Section IV. COMMAND GROUP

3-10. General

The command group in a nondivisional combat aviation battalion is similar to that of an infantry battalion. It is a subdivision of the forward echelon and contains key staff officers and personnel who usually accompany the commander. In the aviation battalion command group, however, the commander may operate from a helicopter. In this case, a special aerial command group is organized, and operates from the aerial CP.

3-11. Composition

There is no definite composition for the aerial command group. It consists of the commander and selected personnel for a given mission. Since the combat aviation battalion is in support of a ground tactical unit, representatives of the supported unit must be included as part of this command group. A typical command group may consist of the following supporting and supported unit representatives:

a. Supporting Unit. Representatives of the supporting unit may include the—

(1) Combat aviation battalion commander.

(2) Intelligence officer (S2).

(3) Operations and training officer (S3).

b. Supported Unit. Representatives of the supported unit may include the—

(1) Commander of the supported unit.

(2) Operations and training officer (S3).

(3) Air liaison officer.

(4) Artillery fire support coordinator.

3-12. Termination

At the termination of the airmobile phase of the operation, the command group normally reverts to only that number of personnel necessary to complete the assigned mission.

3-13. Communication

Sufficient command radio facilities must be available in the aerial CP to maintain contact with ground forces and flight elements to insure timely and expeditious mission accomplishment. See chapter 6 for a discussion of available aerial CP communications.

CHAPTER 4

HEADQUARTERS AND HEADQUARTERS COMPANY, NONDIVISIONAL COMBAT AVIATION GROUP

Section I. GENERAL

4-1. Mission

The mission of the HHC of the nondivisional combat aviation group is to provide command, staff planning, and control of operations of attached aviation battalions and separate aviation companies.

4-2. Assignment

The group HHC may be assigned to a field army, corps, or task force. It is allocated on an as-required basis to control the operations

of three or more aviation battalions. The group normally will be assigned at corps or higher level to reduce the span of control of the supported headquarters over assigned or attached aviation battalions and separate aviation companies. The group may be assigned down to division level to provide support for a special independent-type operation.

4-3. Composition

The composition of the group HHC is shown in figure 4-1.

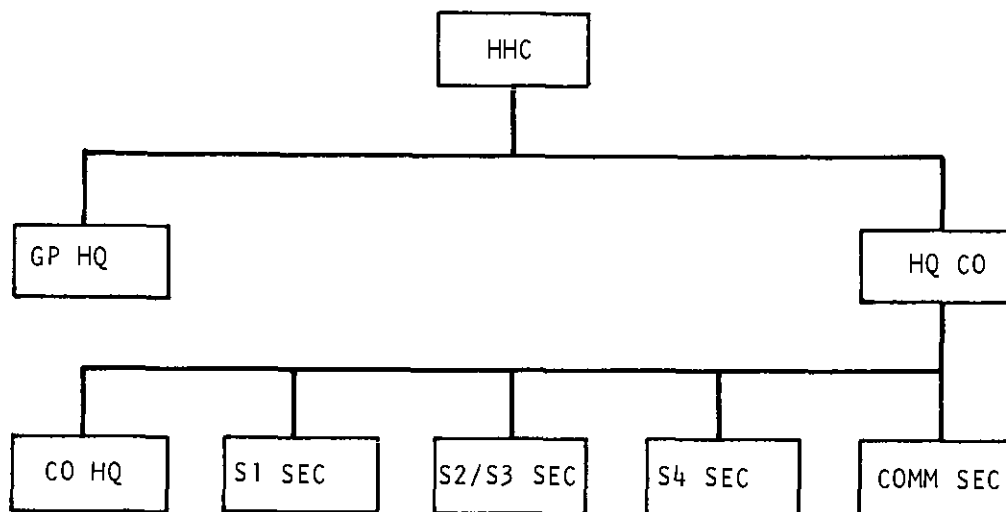


Figure 4-1. Headquarters and headquarters company, nondivisional combat aviation group.

Section II. PLANNING AND COORDINATION

4-4. Planning

a. The ground task force commander is the overall commander during airmobile opera-

tions; therefore, the planning of the aviation group actually begins when the ground commander foresees the need for aviation support

and includes the aviation group commander in the initial stages of planning an operation. The aviation group commander or his liaison officer keeps the ground commander informed on the current aviation situation and airlift support available.

b. Planning and coordination necessary for the aviation group to properly support mission requirements of ground task forces are dependent upon the mission, assignment, and composition of the group. When the magnitude of the operation requires the group to be the control headquarters, the planning and coordination

are much the same as that of an aviation battalion as described in chapter 3.

4-5. Coordination

Close coordination between the aviation group and the supported unit commander and staff is essential to insure that the required complex schedule of delivery of troops and supplies is met. Minute coordination with supporting ground fire support, organic aerial fire support, and tactical air is mandatory to obtain maximum support from these elements with minimum restrictions upon the operation. Continuous liaison between the supported ground task force and the aviation group is necessary to insure a successful operation.

Section III. EMPLOYMENT

4-6. General

The combat aviation group and its assigned or attached units are deployed as directed by the aviation commander to meet the tactical needs of the supported ground task force. The aviation group HHC provides the tactical command and control required for the employment of all units assigned or attached to the group. The HHC normally is located near the supported headquarters to insure maximum staff coordination.

4-7. Group Headquarters

a. *General.* The aviation group headquarters provides command and control for its subordinate units. Mission-type orders normally are used by the group headquarters for issuing orders to its subordinate units to insure maximum responsiveness to the aviation requirements of the supported unit. The headquarters issues orders, assigns missions, and maintains coordination with its subordinate units concerning aviation support for combat elements of the supported headquarters.

b. *Duties of Personnel.* The aviation group headquarters contains the group commander, executive officer, group staff officers, special staff officers, and the sergeant major. These personnel provide supervision for the normal staff sections in a tactical headquarters, and

give supervisory assistance to subordinate units.

(1) *Group commander.* The group commander performs the functions of commander of the aviation group and acts as an aviation advisor to the headquarters to which the group is assigned. As the group commander, he is responsible for the command and control of his subordinate units. He must thoroughly understand the operational techniques of his assigned or attached units. He must be aware of their capabilities and limitations under any given situation, and be prepared to exploit capabilities and operate around limitations. He formulates plans, issues orders, and supervises the operation of any units assigned or attached to the group. As an aviation advisor, he advises the supported task force commander on matters relating to employment of the aviation group assets. In this capacity, he is the primary advisor on aviation matters such as allocation of resources, safety, standardization, and maintenance.

(2) *Executive officer.* The executive officer is the principal assistant and advisor to the group commander. He performs duties similar to those of a chief of staff. He is responsible for execution of staff tasks, the efficient and prompt response of the staff, and the coordinated effort of staff members.

c. Functions of Sections.

(1) *Company headquarters.* The company headquarters contains the company commander, first sergeant, supply sergeant, motor sergeant, clerks, vehicle mechanics, and other personnel necessary to accomplish the administrative, mess, and maintenance functions of the HHC.

(2) *S1 section.* This section, operating under supervision of the group S1, performs personnel functions to include—

(a) Maintenance of unit strength regarding loss estimates and submission of status of strength data, records, and reports showing status of personnel matters and replacement activities.

(b) Personnel procedures for procurement, classification, assignment, promotions, transfers, separations, and rotations.

(c) Certain other functions such as safety management, educational development, dependent schools, marriages to foreign nationals, personnel aspects of estimates, plans, orders, and administrative matters not assigned to other staff sections.

(3) *S2 section.* This section, under staff supervision of the group S2, performs the following functions:

(a) Maintains the enemy situation map and prepares flak overlays from hit-and-fired-at reports from subordinate units.

(b) Processes security clearances, and coordinates with the S1 section to insure that replacement personnel have required security clearances prior to assignment to subordinate units of the group.

(c) Receives and disseminates to appropriate elements spot reports on the enemy activity received from returning aircrews.

(d) Receives and expedites requests for ground and aerial reconnaissance and surveillance, to include visual and sensory-type missions.

(e) Directs, supervises, and coordinates the collection of information on enemy, weather, and terrain, using all the resources at his disposal.

(4) *S3 section.* This section, under supervision of the S3, performs operations functions of the HHC to include the following:

(a) Develops and writes operations plans and orders for multi-battalion operations in support of the ground tactical plan.

(b) Schedules aircraft operating within the group headquarters, to include aircraft used to provide an aerial CP for the group commander, and to provide liaison and command transportation for the group headquarters.

(c) Prepares allocation of aircraft based on the scheme of maneuver of the supported unit.

(d) Maintains and supervises the group combat operations center.

(e) Provides the nucleus of the advance command post.

(f) Establishes and monitors training programs for the HHC.

(5) *S4 section.* Maintenance and supply functions performed by the S4 section include the following:

(a) Coordinates the aircraft maintenance activities of attached or assigned aviation units.

(b) Coordinates with maintenance support units to meet current and projected workloads.

(c) Plans, coordinates, and supervises the logistical functions of the group.

(d) Maintains close coordination with the supported headquarters logistics officer, appropriate support command, or supporting supply unit on logistical matters relating to the group.

(6) *Communications section.* Under supervision of the group signal officer, this section—

(a) Installs, operates, and maintains the group communications system.

(b) Provides staff coordination of the group's avionics activities.

(c) Establishes wire and radio nets with higher, lower, and adjacent headquarters.

(d) Provides technical supervision of communications nets of assigned and attached aviation units.

(e) Develops and prepares signal operation instructions (SOI) and standing signal instructions (SSI) for the group.

(f) Prepares new calls and assigns new frequencies in accordance with established

procedures at the beginning of each unit operation or when the SSI or SOI have been compromised.

(g) Reports all actual or suspected jamming (to include type) and imitative communications-noncommunications activities by the enemy to the group S2/S3.

4-8. Headquarters Company

The headquarters company provides admin-

istrative services for the aviation group HHC. These services pertain to individual requirements of assigned personnel, and include supply, quarters, supervision of nonduty activities, and the maintenance of administrative records. The headquarters company does not establish or operate an airfield, but normally operates in the vicinity of an airfield established by one of the assigned or attached aviation units.

CHAPTER 5

HEADQUARTERS AND HEADQUARTERS COMPANY, NONDIVISIONAL COMBAT AVIATION BRIGADE

Section I. GENERAL

5-1. Mission

The mission of the HHC of the nondivisional combat aviation brigade is to provide command, staff planning, and control of operations of attached aviation groups, battalions, and separate companies. Depending on its mission, the brigade commands or exercises command less operational control over those units assigned or attached to it.

5-2. Assignment

The brigade normally is assigned at field army.

5-3. Composition

The composition of the brigade HHC is shown in figure 5-1.

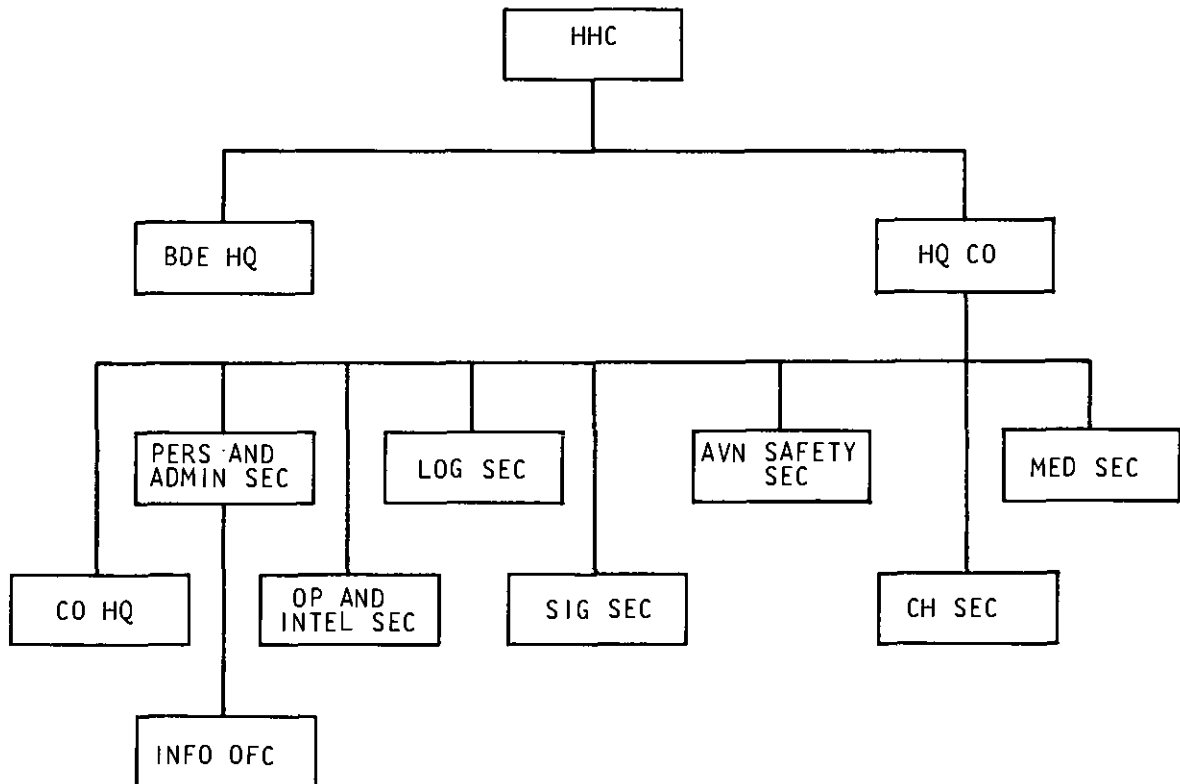


Figure 5-1. Headquarters and headquarters company, nondivisional combat aviation brigade.

Section II. PLANNING AND COORDINATION

5-4. General

The extent of, and type of involvement in, planning and coordination of tactical operations by the brigade headquarters are dependent upon its assignment. The difference between a tactical and an administrative headquarters is the difference between having command only or having both command and operational control of its assigned/attached units. In either case, the command aspect normally is constant, while operational control of assigned/attached units may be passed to other major headquarters which the brigade supports. As a tactical headquarters, the brigade is directly involved in the planning and conduct of tactical operations. It exercises operational control over its subordinate units in support of ground operations. In the administrative role, the brigade headquarters (even though it does not have operational control) must still be able to influence the employment of its units through its function of command and also as a result of direct contact association and coordination between the brigade commander and the ground commanders of the major units it supports.

5-5. Planning and Coordination

The brigade commander normally performs the functions of both brigade commander and aviation officer of the supported headquarters. As a commander, he must thoroughly understand the operational techniques of his assigned/attached units. He makes decisions and issues orders through his subordinate commanders; he prescribes policies, assigns missions, and designates tasks for units under his control. As an aviation officer, he keeps the commander of the supported headquarters informed and advised on matters concerning the employment of the brigade's assets. In this capacity, he serves as the primary advisor on

aviation matters such as allocation of resources, safety, standardization, and maintenance.

a. Concurrent Planning. The degree of success with which aviation units are able to support combat operations depends upon the establishment of airmobile techniques and procedures which are known and understood by both the aviation and supported units. Concurrent planning of operations is essential. If the brigade is performing the function of a tactical headquarters, the brigade commander, staff, and liaison elements must become involved in the planning of operations from the earliest possible moment, and must continue until the operation is completed. This planning is performed most effectively by active participation of the commander and staff, and by liaison teams semipermanently attached to major supported headquarters. If the brigade headquarters is administrative in nature, it will not be directly involved in the allocation and command and control of aviation units during combat operations. However, every measure must be taken to insure concurrent planning with the supported headquarters, and to monitor the planning and execution of combat operations by its assigned/attached units.

b. Coordination. The most effective use of Army aircraft in combat operations is accomplished through closely knit teamwork that comes from constant association of the aviation group and ground units at the lowest operational level. As a tactical headquarters, the brigade will maintain contact with its ground counterparts as well as with its own units. Coordination must be accomplished in such a manner as to minimize loss of time in performing the mission. As an administrative headquarters, the brigade functions much the same as other type support headquarters.

Section III. EMPLOYMENT

5-6. General

The brigade HHC functions the same as similar type units in that each section has its

distinctive mission. Each section provides the necessary personnel and equipment to meet the administrative and operational requirements of the brigade headquarters.

5-7. Brigade Headquarters

a. The brigade headquarters provides command, staff planning, control, supervision, and coordination of assigned/attached Army aviation and supported units. Depending upon its assignment, the brigade headquarters may place emphasis on all of the above, or it may place particular emphasis on a few. When operating as a tactical headquarters, with the majority of the brigade's assets employed, the brigade commander becomes the principal advisor to supported units, and his staff members become the principal coordinators. Normally, the brigade is in general support, with its subordinate units in general or direct support. When employed as an administrative headquarters, the brigade commander and his staff become principal advisors and coordinators to their supported headquarters and primarily provide command, planning, and supervision over their assigned or attached aviation units. In this case the aviation group becomes the tactical headquarters and functions as such.

b. The brigade headquarters operates from the most forward location from which it can best service its supported and assigned units. The brigade staff coordinates directly with the supported staff in the development of aviation plans. Based upon the recommendation of the brigade commander, the units of the brigade are employed to meet the tactical needs of the supported units. Depending on its assignment, the brigade issues orders, assigns missions, and coordinates with its subordinate elements concerning aviation support.

5-8. Headquarters Company

a. General. The headquarters company provides officers and enlisted personnel for the brigade staff sections, and administrative support for the HHC.

b. Functions of Sections. The headquarters company consists of a company headquarters, personnel and administrative section, operations and intelligence section, logistics section, signal section, aviation safety section, medical section, chaplain section, and information office. The operations and intelligence section may function as one section, or it may operate as two separate sections.

(1) *Company headquarters.* The company headquarters performs command, administrative, and supply functions for the company; provides mess facilities; and controls organizational surface transportation and vehicular maintenance.

(2) *Personnel and administrative section.* The personnel and administrative section processes all official incoming correspondence, prepares outgoing administrative directives and orders, and recommends assignment of incoming personnel. This section processes awards and decorations; supervises the preparation and maintenance of records, rosters, and reports concerning those personnel matters not assigned to the personnel service company; and distributes all correspondence originating in the headquarters. In addition, the section maintains a reference library of all applicable regulations and directives.

(3) *Operations section.* Functions of this section include plans and operations, flight information, and flight standardization. The section provides information to the brigade commander and staff on planning matters. The section provides the control and coordinating capability required in performance of the brigade mission, and implements operational procedures and directives of higher headquarters in the employment of assigned or attached units.

(4) *Intelligence section.* Functions of this section are intelligence and security. The section advises the brigade commander and staff on intelligence matters which include enemy capabilities, collection capabilities, terrain, weather, and security clearances of indigenous and U.S. civilian personnel employed by U.S. forces.

(5) *Logistics section.* The logistics section advises and assists the brigade commander and staff on maintenance and supply, and provides technical supervision over the maintenance and supply activities of assigned/attached units. The aircraft maintenance officer coordinates with maintenance units to meet current and projected workloads, and makes appropriate recommendations to the brigade commander. The function of supply actions, not to include aircraft and armament

systems, is handled by the company supply officer. The supply officer also monitors the status and availability of required items of all classes of supply.

(6) *Signal section.* The signal section advises the commander on all signal matters pertaining to the brigade, to include capabilities and status of communications. It provides for the operation of the brigade communications equipment, and for technical supervision over the avionic maintenance activities of assigned/attached units. The section operates the brigade communications center, develops SOI and SSI, and maintains liaison with higher and adjacent headquarters. It exercises staff supervision of the brigade's avionics activities. In addition, it maintains the status of aviation electronics within the brigade, and monitors the capabilities of maintenance elements to meet current and projected workloads and overall aviation electronic programs scheduled by higher headquarters.

(7) *Aviation safety section.* The aviation safety section advises the commander and staff on aviation safety matters pertaining to assigned/attached units. The section develops and monitors the brigade safety program; it

also recommends appropriate preventive and corrective measures.

(8) *Medical section.* The brigade surgeon advises the commander on all matters pertaining to the health of personnel of the command. He normally exercises staff supervision over assigned or attached medical service unit. He develops policies and procedures for medical personnel, and recommends assignment of medical officers.

(9) *Chaplain section.* The chaplain advises the commander on matters pertaining to religion, welfare, and morale within the brigade HHC. His section provides religious services and related functions. The chaplain is instrumental in assigning other chaplains and monitoring their activities within the brigade. He also contributes to the civil affairs program of the unit and advises on the psychological operations aspects of indigenous religions.

(10) *Information office.* The information office disseminates information pertaining to brigade activities, operations, and personnel to information channels and authorized news media. It also disseminates bulletins that contain information of command emphasis and troop interest to subordinate units.

CHAPTER 6

COMMAND, CONTROL, AND COMMUNICATIONS

Section I. COMMAND AND CONTROL

6-1. General

a. The commander of a nondivisional combat aviation battalion, group, or brigade exercises his authority and promotes continuity throughout his command by prescribing policies, assigning missions, and designating tasks for all units within his command. He becomes involved in the execution of those tasks assigned to subordinate headquarters to the extent required to insure the coordinated effort of the brigade, group, or battalion in accomplishing its mission. He makes decisions and issues orders through the chain of command. He must be capable of commanding diverse combinations of aviation units under all conditions of warfare in all kinds of terrain and weather. The flexible organizational characteristics of the brigade, group, and battalion demand that the commander have a thorough knowledge and understanding of combined arms operations, ground tactical operations, and joint U.S. and Allied operations.

b. When assigned to a higher aviation command, and in addition to his normal command duties, he becomes an advisor to that aviation commander and to the supported ground unit commander on the employment of the assets available in his command. When assigned to other than aviation controlling headquarters, the commander at each level of command may be required to function as the aviation staff officer. To do this, he may assign a member of his command to the controlling headquarters as his representative. In either case, he is responsible for performing the staff duties discussed in FM 101-5.

c. The commander must provide his subordinate commanders with adequate guidance for their operations, but must allow each commander maximum freedom of action when

implementing his orders. The increased speed of airmobile operations demands that he remain flexible and capable of rapidly reacting to fragmentary and mission-type orders.

6-2. Command Channels and Succession of Command

a. The commander of each aviation organization exercises command over all elements assigned or attached to his headquarters. His principal subordinates are the commanders of the major assigned or attached units. Each commander's relationship with his subordinate commanders must be direct and personal. Throughout the chain, each commander must have full access to his commander at all times.

b. The staff at each subordinate command level must be prepared to function as the command element if the higher headquarters becomes inoperable. Therefore, each commander and all staff members must keep abreast of the situation and current in all matters of major importance to operations.

6-3. The Deputy Commander

A deputy commander may be needed to reduce the span of control associated with an aviation group or brigade when comprised of multiple subordinate units deployed and committed over relatively large areas. The deputy commander may temporarily command an element of the group or brigade to insure adequate command attention during the performance of an assigned task or mission. He must always be prepared to assume command of the unit to which he is assigned.

6-4. Staff Officer

Duties of unit and special staff officers are discussed in chapters 3, 4, and 5 and in FM 1-15. A detailed discussion of staff organizations at all levels is contained in FM 101-5.

Section II. COMMUNICATIONS

6-5. General

Nondivisional aviation battalions, groups, and brigades are afforded access to services provided through the nearest army area communications center. In a division area, a similar service is provided through the division signal center. Where communications equipment organic to the aviation unit does not provide for establishment of an airborne command post, the equipment necessary for this capability must be obtained through normal supply channels.

6-6. Communications Security

a. Communications security is a command responsibility which extends to every individual who participates in the transmission of communications. The commander establishes communications security measures by stating general principles in the unit SOP and by announcing, before an operation, any variation from normal security practices.

b. The commander uses radio communications—*electronic measures*—to control his forces during an operation. The enemy uses *electronic countermeasures* (ECM) to interfere with these communications, or to gain information for his own use. Friendly forces use *electronic counter-countermeasures* (EC-CM) to maintain communications and to avoid providing timely information to the enemy despite his countermeasures.

c. One method of countering enemy communications countermeasures is to deny the enemy an opportunity to use such countermeasures until it is too late for them to be effective. An example of the use of this method by aviation personnel participating in an airmobile operation is for all personnel to observe strict radio discipline during the flight from the pickup zone (PZ) to the landing zone (LZ). This denies the enemy knowledge of the frequency which is to be used and also denies him an opportunity to gain information by intercepting radio transmissions. Upon arrival at a predesignated point, the flight leader makes one concise radio call to a pathfinder element located on the ground near the LZ. By thus

denying the enemy knowledge of the frequency to be used, the flight leader can complete his communication before the enemy can react and take countermeasures to interfere with the communication. Also, the enemy is given a minimum amount of time in which to react to information gained by intercepting the flight leader's transmission.

d. The combat commander must assume that his radio communications will be deliberately intercepted by the enemy for intelligence purposes. All personnel who have access to such equipment must be indoctrinated in the tactical dangers of improper radio procedures.

(1) *Call sign/frequency changes*. Prior to the beginning of an operation, call signs and frequency assignment must be obtained from the signal officer; alternates will be obtained in the event the enemy employs electronic countermeasures against friendly communications.

(2) *Authentication*. Authentication is a security measure to protect a communications network against fraudulent transmissions. The rules of acquisition and use of Army-approved systems are outlined in AR 380-52. Local operating instructions should specify the systems to be used.

(3) *Transmission brevity*. In order to degrade enemy efforts at direction finding, all transmissions should be as brief as possible.

(4) *Operator chatter*. Operators of communications equipment must be prohibited from idle chatter. Not only does such a practice enhance the enemy direction-finding effort, but also affords him intelligence information of great value.

6-7. Radio Nets

Radio nets within the battalion, group, brigade, and subordinate units are primarily for organic communications, to include communications between major aviation units. A limited number of radios is provided for monitoring warning broadcast systems and for communications with echelons above the headquarters. AM and FM radios are used as an initial means of communications. As other means become available, the use of radio is re-

duced and radio stations are placed on standby or listening silence as appropriate. Although radio nets are functionally designated (e.g., command, intelligence), traffic and other considerations frequently dictate that the nets be combined and used for more than one type of traffic.

6-8. Battalion Internal Radio Nets

a. Battalion Command Net (FM Voice). This net provides the battalion commander with a means for command and control of the battalion. In an emergency, logistical traffic may be passed over this net. The net control station is the battalion operations section.

b. Battalion Operations Net (SSB Voice). The battalion's major elements are flexible, and may be required to operate over extended distances. Where terrain, distance, and other conditions adversely affect FM communications, it may be necessary for the battalion to establish SSB voice nets. If an SSB voice net is justifiable, it will be necessary to modify the battalion TOE with the addition of an appropriate TOE 1-500 team.

c. Battalion Air Traffic Control Net (UHF Voice). The operations sections of battalion headquarters and the various companies operate stations in this net for control of aircraft. Each aircraft has organic UHF-VHF radio equipment to enter the net as specified by the SOP.

d. Companies or Detachments Within the Battalion. Units within the battalion operate stations in the appropriate battalion nets, and monitor a higher headquarters warning broadcast net. In addition, each unit establishes nets for command and control of its subordinate elements and for logistical traffic.

6-9. Battalion External Radio Nets

a. Supported Unit Command Net (FM Voice). This net is used by the supported unit commander for command and operational control, and to issue orders to his staff and to commanders of certain subordinate units.

b. Group Command Net (HFSSB-RATT). This net serves as the command net for the aviation group commander; and it functions in the command net described above.

c. Warning Broadcast Net (AM Voice). The purpose of this net is to monitor broadcast information concerning CBR attacks, nuclear strikes, and enemy air activity. The aviation battalion and each company have organic receivers to provide the capability to monitor this net. The battalion will monitor the warning net that covers the sector in which the battalion is operating.

6-10. Group and Brigade Internal Radio Nets

a. Group/Brigade Command Net (FM Voice). This net provides the group/brigade commander with a means for command and control of his unit. Net control usually is maintained by the unit's intelligence section.

b. Group/Brigade Operations Net (HFSSB-RATT). Although the personnel and equipment for this net normally are authorized by TOE, the situation may make it necessary for the group/brigade to operate an HFSSB-RATT net. This is due to the great distances over which subordinate elements may be required to operate.

6-11. Group and Brigade External Nets

a. Command Net (FM Voice). This net is used by the next higher commander for command and control and to issue orders to his staff and to commanders of certain subordinate units.

b. Command Net (AM-SSB-Voice). Use of this net will depend on the capabilities of the next higher command. If the AM-SSB voice net is used, it will serve the same function as the command FM net described in *a* above.

c. Warning Broadcast Net (AM Voice). This net is used to monitor broadcast information concerning CBR attacks, nuclear strikes, and enemy air activity.

CHAPTER 7

COMMAND RELATIONSHIPS

7-1. General

a. The use of aircraft provides the ground force commander with a faster, more flexible means of moving troops and materiel throughout the combat area and adds a new dimension to fire support. Commanders should take full advantage of this asset. This chapter provides information and guidance which will assist in the successful planning for and employment of the nondivisional aviation battalion, group, or brigade.

b. To provide immediately responsive air-mobility to all maneuver elements, aviation units normally are assigned one of three tactical missions; direct support, general support, or reinforcing (aviation reinforcing aviation). Occasionally, when adequate support cannot be provided through assignment of one of these normal missions, a nondivisional aviation unit may be attached or placed under the operational control of a headquarters for a specific period of time or for a specific mission.

c. The commander of the supporting aviation unit becomes a subordinate commander and an advisor to the supported U.S. Army ground force commander. Although the aviator in command of an aircraft is the authority on the technical operation of that aircraft, the Army commander to whose command the Army aviation is assigned or attached exercises the same command function over the aviator, organization, and equipment as he does over his other Army units (AR 95-1).

d. Aviation units can perform a wide variety of tasks on the battlefield; therefore, care must be exercised in mission assignments to insure that this valuable asset is fully utilized.

e. Factors which should be considered in assigning missions include the—

(1) Overall mission.

(2) Magnitude of aviation support required.

(3) Capability of enemy interference with operations.

(4) Availability of armed escort.

(5) Number of separate tasks to be accomplished.

(6) Types of aviation units available.

(7) Number and condition of aircraft available.

(8) Number and size of planned operations.

(9) Forecast or existing weather conditions.

(10) Tactical situation.

(11) Duration of operation.

(12) Logistical support requirements.

7-2. General Support

It is desirable to assign nondivisional aviation units a general support mission which allows the aviation commander to attain maximum flexibility. When so employed, the maximum number of tasks can be performed simultaneously. The tasks may be assigned on an area basis or as specified tasks such as participation in an airmobile operation or resupply of a task force. Typically, a nondivisional aviation brigade assigned to a field army will place a group in general support of a corps. The group then may assign a battalion to provide general support or direct support to a division, or to perform specific missions on a day-to-day or even an hourly basis. Since the amount of support required by the committed ground forces will vary considerably from day to day, the assignment of general support roles is more appropriate and permits the nondivisional aviation unit commander to exercise control of his assets.

7-3. Direct Support

a. Nondivisional combat aviation battalions, or even an entire aviation group, may be placed in direct support of a division. In rare instances, this role may be assigned to the brigade, but only when the mission cannot be accomplished by other means. In a direct support role, the supporting aviation battalion or group commander coordinates with the task force commander, normally through the aviation officer.

b. The nondivisional aviation battalion may be placed in direct support of any tactical unit, divisional or nondivisional, which requires aviation support. When placed in direct support of a tactical unit which does not have an aviation officer, the aviation battalion commander serves as the supported unit's aviation staff officer.

c. The assignment of a direct support mission will depend upon the magnitude of the mission, expected duration of the operation, geographical distances, and type of support to be provided. Although a direct support role may restrict the flexibility of the aviation assets, it will enhance the responsiveness of the aviation element to requirements of the ground tactical unit.

7-4. Attachment

Normally, nondivisional aviation units are not attached below division level except for special missions. Nondivisional aviation units usually are not attached to a division unless the division is operating at a considerable distance from the bulk of the main force or unless the aviation brigade or group commander finds it difficult to exercise proper control of the operation for some other reason. Attachment restricts the flexibility of the aviation element, but increases the flexibility and mobility of the supported unit through immediate responsiveness. When attached to tactical units which do not have organic aviation units, the aviation commander will also become the aviation staff officer for the supported unit. Long-term attachments may require adjustments in

maintenance support, and should be used only when absolutely necessary for mission accomplishment.

7-5. Operational Control

To accomplish special tasks under unusual circumstances, it may be necessary to temporarily place nondivisional aviation units under operational control of a headquarters other than its parent unit. This is more likely to happen at brigade or group level than at battalion. Operational control could be used, for instance, through placing a nondivisional aviation group under the operational control of a joint task force headquarters to conduct an amphibious operation at some distance from the main force. In this case, the joint task force would retain operational control until the nondivisional aviation brigade, the corps, or the Army headquarters is established and capable of controlling its units. The period of operational control should be limited to the minimum time needed to accomplish the mission. Operational control includes the direction of tactical, technical, or service operations or any combination thereof. It does not include responsibility for supply, administration, or movement (other than tactical maneuvering) unless such additional responsibilities are delegated specifically by the commander.

7-6. Reinforcement

Occasionally, nondivisional aviation units may be called on to reinforce either divisional or other nondivisional aviation units. When assigned a reinforcing role, the commander coordinates with the reinforced aviation unit commander. He will receive all flight missions and tasks from the reinforced unit commander. Planning for operations normally will be accomplished by the reinforced unit and coordinated with the reinforcing element. Normally, this type of mission is assigned to small elements within the battalion; however, for short special missions it may be assigned to a battalion-size element.

CHAPTER 8

PLANNING FOR AIRMOBILE OPERATIONS

Section I. INTRODUCTION

8-1. General

a. The purpose of an airmobile operation is to accomplish a successful combat operation on the ground. In planning for the aviation support of an airmobile operation, the aviation commander determines where and in what strength combat power will be positioned by the airmobile task force (AMTF) commander to accomplish the mission. Based on this information, the aviation commander advises the AMTF commander what aviation resources can be made available to support the operation. There will not always be enough helicopters available to place the entire force on the ground in the battle area at one time. Proper time scheduling and tailoring of resources will often compensate for a less than desired number of aircraft or inadequate PZ and LZ. After the lift requirements have been determined by the ground commander and the aviation representative, these requirements should be presented to the aviation commander in terms of units of lift (platoon, company) rather than in specific numbers of aircraft. The aviation resources will be allocated by the aviation commander to meet the lift requirements of the ground commander. Both commanders should strive to achieve mutual tactical integrity within both the lift and lifted units.

b. Aviation commanders at all echelons accompany their units on operations. When more than one reinforced lift company is involved, the lift battalion commander should be on the scene with a command and control helicopter to control the aviation elements. When more than five lift companies are involved, consideration should be given to the organization of two aviation battalion task forces. Each task force would then be commanded by a battalion

commander, and the overall aviation operation commanded by the group commander or senior battalion commander. A task organization with a lesser command structure could become too unwieldy to be adequately controlled by one commander.

8-2. Resources Available

Early in the planning stage, both aviation mission and airmobile task force (AMTF) commanders and their staffs must know what resources are available with which to accomplish the mission. These resources include combat, combat support, and combat service support elements as well as the necessary items of supply and equipment to support the operation. At this point, the aviation liaison element assists the ground commander and his staff by determining what aviation resources are available.

8-3. Utilization of Aviation Resources

Hoarding of the lift capability should be avoided. This procedure has been practiced because of the mistaken impression that holding the capability under direct control, even though it is not being constantly used, provides a more immediate responsiveness. Although partially correct, this procedure provides immediate response for only a limited period of time. The aviation commander must be given the flexibility of shifting aircraft not actually in use to perform missions for other combat units or even to maintenance areas. When one ground commander holds all aircraft away from maintenance facilities for extended periods, he deprives the aviation commander of this flexibility. The decision as to when to release supporting aviation resources is the responsibility of the AMTF commander. However, the avia-

tion commander is responsible for insuring that the supported commander is informed of any subsequent or competing missions for his aviation resources. If, because of unforeseen delays or changes in operational requirements, it becomes necessary for the task force commander to retain his aviation support beyond the planned time, he must immediately inform the next higher headquarters. The aviation commander *will not discontinue his support* until it has been released by the AMTF commander.

8-4. Types of Airmobile Operations

Airmobility lends itself to employment—both day and night—in all types of operations. Planning for all types is accomplished in essentially the same sequence, and planning considerations are essentially the same. Night operations and operations in adverse weather require more detailed planning and briefing than day operations in favorable weather. In all airmobile operations (FM 57-35), planning must provide for mutual tactical integrity for both the lift and lifted units. Whenever possible, an aviation battalion should lift the assault elements of a rifle battalion; a company should lift a company; and a platoon should lift a platoon. The AMTF commander should ride with the aviation commander in the command and control helicopter. Normally, this helicopter should not be included in the tactical flight formation, but should be free to move wherever the AMTF commander can best control the operation. In an airmobile assault, the AMTF commander should plan to control the ground action, at least initially, from the air. A discussion of the various types of airmobile operations follows:

a. Offensive. Offensive operations include airmobile assaults to accomplish movement to contact, envelopment, exploitation, pursuits, raids, ambushes, reconnaissance in force, and counterattacks. Because of the mobility provided to the AMTF by the use of helicopters, a frontal attack is seldom required and should be avoided whenever a flanking maneuver or envelopment can be accomplished. The ability to rapidly reinforce a successful attack is a potential which should not be overlooked in

planning. The airmobile reserve or reaction force can be highly effective in this role.

b. Defensive. The AMTF is capable of conducting all forms of defense, but should avoid the area defense whenever possible because it fails to exploit fully the inherent mobility of airmobile operations. The AMTF is well suited to employment in a mobile defense.

c. Retrograde. The AMTF is well suited to all forms of retrograde operations. Withdrawal under fire, however, is hazardous. Generally, reinforcement in an area of contact is a far better solution if at all possible. If LZ's are available, it may be advantageous to reposition forces against the enemy to force him to fight in several directions. When withdrawal is necessary, the force should attempt to break contact before the helicopter extraction is attempted. In any case, carefully planned and controlled fire support is required to support the extraction. The AMTF can best accomplish a delaying action by repositioning forces on the flanks or to the rear of an advancing enemy rather than by occupying successive delaying positions in front of him.

d. Relief in Place. Relief in place can be accomplished rapidly and efficiently through use of helicopters. The same helicopters which deliver the relieving unit can be used to extract the relieved unit.

e. Feints. The feint, when properly executed, has proven to be a valuable tool of the AMTF. The basic consideration in planning a feint is to determine what enemy reaction is desired, and how to cause him to react in that manner. When it is believed that the enemy may withdraw from an actual assault, it may be wise to feint a landing along his logical withdrawal route before or during the actual airmobile assault. This type of feint may fix the enemy for the actual assault force. In placing patrols in enemy areas, several false landings may be made to confuse the enemy as to the actual patrol LZ. A feint extraction to cause the enemy to believe friendly forces have withdrawn may well set the stage for a successful ambush in a specific area. It can be assumed that the enemy constantly strives to intercept friendly communications; therefore, the strategy of a feint must be augmented by electronic deception. It must be realized, however, that

the success of the overall tactical mission must not be dependent upon this tactic (FM 32-20-1).

f. Passage of Lines. Passage of lines, as nor-

mally used in other operations, is not accomplished by airmobile means. It may occur during an airmobile operation but normally is not accomplished by the use of helicopters.

Section II. MISSION, PLANNING, AND LIAISON

8-5. Mission Assignment

Missions are assigned to aviation units by the appropriate supported headquarters. Depending upon the magnitude of the requirement, the aviation group will either control the aviation assets or further assign the mission to a battalion for control. Smaller missions are passed from battalion to company for control, and from company to platoon as appropriate.

8-6. Commander's Reconnaissance

Most assigned missions are based on information which has been obtained from one or more of several sources. It is extremely important that this information be analyzed to determine its reliability and what measures can be taken to further confirm, develop, or add to it. Verification is normally accomplished by an aerial reconnaissance by the AMTF commander and selected members of his staff as well as subordinate and supporting commanders. Whenever possible, it is a combined reconnaissance with all necessary personnel participating at the same time, preferably in the same aircraft. In this manner, the AMTF commander insures that all parties are properly oriented and that they understand exactly what is being planned. A combined reconnaissance also reduces traffic in the operational area which might attract enemy attention and increase the possibility of compromising the operation.

8-7. Planning Sequence

Detailed planning for mission accomplishment normally will begin only after the commander and his staff have analyzed the factors of METT (mission, enemy, terrain and weather, and troops available), performed the necessary personal reconnaissance, and arranged for the required additional reconnaissance and surveillance. The planning sequence

must be in reverse chronological order, i.e., the plan is formulated from mission accomplishment back through organization of the LZ to operations at the PZ. The first step is to determine the organization for combat and formations required by the ground element to seize the objective. At this point, the aviation commander works closely with the AMTF commander to select suitable LZ's which will allow the ground force to be landed as near as possible to the desired location and in the desired formation. Fire support, to include location and time of preparation (if planned) and any limitation on flight routes imposed by artillery (mortar) gun-target lines and tactical air flight paths, must be considered. Multiple landing release points should then be selected to provide flexibility during the assault and follow-up lifts. This will allow the aviation commander to change from one landing release point to another as subsequent lifts arrive to avoid repeated flights over the same route, or to capitalize on changes in the situation. Flight routes from the PZ to the landing release points are then selected by the aviation mission commander based on the guidance and desires of the AMTF commander. Multiple flight routes should be selected for the same reasons that multiple landing release points are selected. Organization of the PZ should be planned by the AMTF commander assisted by the aviation mission commander. They must consider takeoff formations, loading sequence, preparation of loads, traffic regulation in and about the PZ, and security. Throughout the planning sequence, times must be computed backward from PZ loading time to insure that all participating elements arrive at the PZ on schedule.

8-8. Liaison

a. Aggressive liaison between the supporting aviation unit and the supported ground unit

is the key to well-planned and efficiently conducted airmobile operations. The aviation liaison element must be constantly aware of the tactical situation; the status, current capabilities, and limitations of the parent unit; and the plans, status, capabilities, and limitations of the supported unit. The Army aviation element (AAE) must participate in planning from the earliest phases until the plan is completed. It must keep its own unit informed as the plan develops, and assist the supported commander and staff in the use of aviation resources during the conduct of operations. It must be equally responsive to requirements from its own unit and from the supported unit.

b. To meet requirements for liaison, each aviation brigade or group commander provides an AAE at his respective supported headquarters. This element provides the necessary liaison effort at that level. In addition, each group, either with resources provided from the group headquarters or from a specified subordinate battalion, provides a liaison team with necessary communications to each supported U.S.

Army and Allied division. Liaison below these levels is provided, on a mission basis, by the aviation unit supporting a particular operation. The establishment of an AAE or liaison team with a supported unit does not preclude the requirement for aviation commanders to accomplish personal coordination with the supported commander and his staff. When an aviation battalion or company is attached to, in direct support of, or under operational control of a supported unit for an extended period of time, it should collocate a forward or jump command post (CP) with the supported unit CP to enhance mission planning and expedite response to immediate requirements. This CP or the liaison officer must know the disposition of aviation resources at all times, and must be able to assemble them rapidly in response to rapid reaction or emergency missions. Figure 8-1 shows the normal liaison requirements for aviation units supporting land combat forces.

c. Both the S2 and S3 must maintain close liaison with the U.S. Army Security Agency special staff officer in the technical warfare

RECEIVING UNIT	AVN GP	AVN BN	ASLT HEL CO	ASLT SPT HEL CO	UTIL ACFT CO (U-1)	SURVL ACFT CO (OV-1)
CORPS	1					
DIVISION (U.S.) (ALLIED)	1	2				
SEPARATE BRIGADE (U.S.)	2	2	2	2		
INFANTRY BATTALION		2	2	2		
ARTILLERY BATTALION				2		
SUPPORTED UNIT			2	2	2	2

1 INDICATES SEMIPERMANENT LIAISON.
2 INDICATES MISSION BASIS.

Figure 8-1. Liaison requirements.

element of the division tactical operations center (DTOC) of the supported division. This officer is the focal point for the assembly and dissemination of ASA information relating to

the enemy's combat posture as well as his attempts to carry on electronic warfare, particularly jamming and imitative communications deception.

Section III. SPECIFIC PLANNING CONSIDERATIONS

8-9. General

In addition to the broader aspects of planning discussed above, there are many aviation factors that can influence an airmobile operation. The aviation commander must insure that these factors are given proper consideration during the planning of the operation. Some of these factors are discussed in the following paragraphs.

8-10. Security

a. Physical security of aviation units in support of an airmobile operation is the responsibility of the AMTF commander. Under some circumstances, it will be desirable to relocate aircraft to a secure area when it is not feasible to provide security in a forward area.

b. One of the best means of accomplishing physical security for an aviation unit is through mobility. Frequent displacement of the PZ or base area denies the enemy the reaction time he normally requires to plan and launch an attack. An aviation unit should plan to operate from a specific forward area for no longer than 2 days.

c. Communications security is the responsibility of the aviation commander. All measures employed must be rigidly enforced before an operation, during its initial phase, and, to the extent practicable, during actual contact with the enemy. Detailed guidance on communications security is provided in FM 32-5.

8-11. Communications

Radio communications and prearranged visual signals are the primary means of communications during airmobile operations. All participants in an airmobile operation must understand all prearranged visual signals. Radio communications are discussed in chapter 6.

8-12. Fire Support

The fire support means available to the

AMTF commander may be artillery; naval gunfire; organic mortars; armed helicopters; and Air Force, Navy, or Marine air. During a specific operation, the AMTF may be supported by any or all of these means.

a. The fire support plan must include all means of fire support available. Fires of the armed helicopters organic to the helicopter unit normally are "on call" under control of the aviation mission commander. All fires along the flight route may be used to facilitate the safe movement of the lift formations past areas of known or suspected enemy positions. These planned fires should be intense and of short duration due to the speed with which the lift formation may pass a specific location. Preparatory fires on and around an LZ should also be intense and of short duration. Long preparations tend to compromise the intent of the airmobile force, and to allow the enemy time to ambush the LZ or withdraw before the airmobile assault can be executed. Positive control measures must be established to provide for lifting all fires or shifting them to more appropriate areas. Fire support must also be included in the planning for feints or diversionary assaults.

b. Smoke may be employed along a flight route or near the LZ to mask movements of helicopters from enemy observation and fire. However, care must be taken to insure that the smoke does not obscure the vision of pilots or cause undesirable fires in the area.

c. As another element of fire support, electronic warfare can be employed to jam enemy communications, navigational aids, weapon control systems, and search radars.

d. TAC air is responsible for providing air superiority, isolating the battle area by restricting enemy movement into or from the area, and providing close air support to attack hostile ground targets.

e. Armed helicopters may be used to provide

direct fire support to ground forces, subject to the following requirements:

(1) Aircrews must be thoroughly familiar with the tactical situation.

(2) Friendly positions must be positively identified by the aircrews.

(3) Positive radio communications must be maintained between the helicopters and the supported ground unit.

(4) Point target gunnery techniques must be used.

f. An airmobile force is most vulnerable to air attack after initially moving into the objective area. Active air defense will initially depend upon Redeye weapons, crew-served automatic weapons, and individual weapons used for air defense. Passive measures, to include cover, concealment, camouflage, dispersion, and movement, will lessen the effects of enemy air attack.

8-13. Logistical Support

The AMTF commander must be aware of the large quantities of POL and ammunition required to support helicopters participating in airmobile operations. Plans should include, as necessary, the prestocking of these items in required quantities and locations.

8-14. Night Operations

Night operations are not only feasible, but can be very successfully accomplished. Additional requirements for the conduct of night operations include pathfinder assistance and more detailed planning and briefing. Navigation in night operations is more difficult for both ground and air elements than in day operations, but this difficulty can be overcome by training and planning. Night airmobile operations have the advantage of increasing tactical surprise and reducing the effectiveness of hostile fires.

8-15. Aircraft Maintenance

Aircraft require extensive organizational maintenance to remain operational. Scheduled maintenance—that maintenance which is performed at regular intervals—is accomplished mostly on the basis of hours flown. Nonscheduled maintenance is that maintenance which results from unpredicted requirements for

repair due to component failure, battle damage, crash damage, or unusual conditions. To provide a lift capability on a continuing basis, the aviation commander must have a number of aircraft undergoing either scheduled or nonscheduled maintenance at any one time. If all mission-ready aircraft are flown every day, scheduled maintenance cannot be accomplished and the nonscheduled maintenance which results will soon reduce the mission-ready rate. By proper scheduling and supervision, scheduled maintenance can be programmed and controlled, and the amount of nonscheduled maintenance required can be minimized. FM 1-10 furnishes guidelines for commanders, staff officers, and organizational maintenance and supply supervisors in management, supervision, and scheduling of aircraft maintenance.

8-16. Selection of PZ and LZ

There are several factors to consider in the selection of PZ's and LZ's. Rarely will all of these factors be the same in any two situations. Each should affect the selection to one degree or another.

a. The first considerations are the mission and the landing sites (PZ's and LZ's) which best suit the tactical plan. Location and size will probably be the major factors in selection of these sites. The desired location normally is one which positions the assault troops in an area that provides reasonable cover from enemy direct fire, affords concealment from enemy observation, and is within easy assault distance of, or on, the objective area. They should afford ease of identification from the air under expected visibility conditions. The desired size is one which will accommodate a simultaneous landing of all assault elements in a predetermined formation. Whenever possible, formations should take off and land simultaneously. This technique has the advantages of ease of control, saving of time, use of minimum airspace; it also allows the airmobile force to get the maximum combat power into the LZ at one time. Under certain conditions—extremely dusty areas, small areas, high density altitudes—mass landings or takeoffs may not be possible. In such cases, plans should be made for sequential takeoffs and/or landings

by sections, platoons, or companies of aircraft as required. Terrain in the site should be relatively level and free of obstructions such as holes, tall grass, swampy areas, brush, stumps, antihelicopter devices, and barbed wire. Such desirable terrain features will seldom be available in an area of operations, but they should be sought out to the maximum practicable extent short of jeopardizing the mission.

b. A map reconnaissance seldom provides enough accurate information to allow a commander to select a site; visual reconnaissance is almost always a necessity. (If a visual reconnaissance is not possible, forward panoramic, horizon-to-horizon photography acquired by an aerial surveillance element is a useful map supplement in selecting the LZ.) The visual reconnaissance should be accomplished jointly by both the ground commander and the aviation commander or his liaison officer (LO). However, the manner in which this reconnaissance is accomplished should not provide information for the enemy to use in his planning.

c. Once a site has been selected, it may be necessary to lighten individual aircraft loads in order to use it. Reasons for this might be the density altitude, steepness of the slope, high trees surrounding the site, or high grass or brush which will not allow the aircraft to touch down.

8-17. Flight Routes

Flight routes are selected to avoid enemy strengths, to provide deception, and to take advantage of terrain. The AMTF commander should delegate the selection of flight routes to the aviation commander or LO. Flight routes may be specified paths over the terrain, or may be described by use of a simple checkpoint system to allow flexibility for in-flight changes. When flight routes are specified over specific paths, navigation by flight formation leaders can be enhanced when they are provided with a sequential series of low altitude, forward looking panoramic, horizon-to-horizon aerial photographs taken along the flight route.

8-18. Atmospheric Conditions

Since the ground commander makes the final

decision whether or not to accept the risks involved in conducting aircraft operations during unfavorable conditions, he should understand the effects of atmospheric conditions on aircraft operations. Some of these conditions, and their effects, are discussed below.

a. *Density Altitude.* Density altitude is the one atmospheric factor which will probably most frequently affect operations. Density altitude is a term used to equate a given air density to an altitude above sea level. It reflects the ability of the air, at a particular time and place, to support the weight of an aircraft with a given amount of power. Density altitude is a function of temperature, barometric pressure, humidity, and elevation above sea level. Temperature and elevation have the most effect on density altitude. An increase in either or both of these factors results in a higher density altitude condition. As the density altitude increases, the lifting capability of the aircraft decreases. As the temperature increases, each aircraft has a lesser lift capability. During an early morning lift, 18 helicopters may successfully lift 144 troops in one lift; in the same area, when temperatures are higher later in the day, those same 18 helicopters may be capable of lifting only 120 troops in one lift.

b. *Wind.* Wind direction and speed are factors which must be considered. An aircraft taking off or landing into the wind requires less forward motion over the ground than one similarly operating in a no-wind condition. A downwind condition has exactly the opposite effect of a headwind as regards takeoffs and landings. As wind increases, proportionately larger areas are needed for downwind operations. Takeoffs and landings should be planned into the wind. If that is not feasible, then loads should be reduced accordingly, or larger PZ's and LZ's should be used. Wind will also affect the time en route for the aircraft; headwinds will increase time en route; and tailwinds will reduce time en route. When timing is critical, adjustments in takeoff time and in specified airspeeds will have to be made to compensate for wind.

c. *Visibility.* Helicopters can be operated under adverse visibility conditions. However, reduced visibility makes navigation and forma-

tion flying more difficult, and increases the possibility of mid-air collisions. When visibility decreases below normal safe limits, the aviation commander should be consulted about whether or not to cancel airmobile operations. He will advise the ground commander based on consideration of factors such as terrain, density of air traffic in the area, state of training of his aviators, and the urgency of the mission.

d. Turbulence. The degree of turbulence encountered during operations, particularly in mountain operations, may affect the size of the loads carried, en route speeds, and flight path to the LZ.

8-19. Loading for Airmobile Operations

Because of the limited lift capabilities cur-

rently existing, the ground commander should trim the initial lift of his unit to only the personnel and materiel necessary to accomplish the immediate assault mission. Personnel not required in the initial assault and items such as extra clothing and rations should be excluded. These can be brought into the area in follow-up lifts, usually only a few minutes behind the assault lift. Careful planning and sound judgment will allow the ground commander to place the maximum amount of combat power in the LZ during the assault lift.

8-20. Crew Fatigue

Commanders should be aware of the possible consequences of continuous long periods of flight operations, and the resulting fatigue among aircraft crewmembers, in terms of probable aircraft accidents.

CHAPTER 9

COMBAT OPERATIONS

Section 1. COMBAT SUPPORT OPERATIONS

9-1. General

Army aviation units live with the Army in the field to be available for operations on short notice and immediately responsive to the requirements of supported troop commanders. The troop commander utilizes these supporting Army aviation elements to increase the tactical capabilities of his force. He assigns tasks to the aviation commander, and the aviation commander employs his unit to accomplish these tasks in support of the ground force. This chapter discusses combat support operations which are most likely to be conducted by aviation elements in support of the ground force commander.

9-2. Intelligence

Aerial observation is the general examination or study from an aircraft to obtain military information of an enemy, the terrain, the weather, friendly forces, and fire support. Aerial reconnaissance and surveillance are types of aerial observation which supplement the normal means available to the AMTF commander for the collection of information. These elements may be organic to aviation or non-aviation units, or they may be assigned to operate with separate units.

a. Capabilities. Depending upon their composition, aerial reconnaissance and surveillance elements can—

- (1) Conduct aerial reconnaissance of routes, zones, and areas by use of visual, photographic, side looking airborne radar (SLAR) and aerial infrared (IR) systems.

- (2) Disseminate the imagery produced by SLAR and IR systems to various headquarters in near real time through ground data stations.

- (3) Acquire information for post-strike

analysis of nuclear weapons effects.

- (4) Acquire information for CBR survey by use of aerial means.

b. Limitations. Limitations of aerial reconnaissance and surveillance elements may include—

- (1) Aerial reconnaissance and surveillance means are limited by adverse weather conditions.

- (2) Use of ground data stations is limited by the requirement for line-of-sight between the sensor stations and the aircraft conducting SLAR/IR missions.

- (3) There is a requirement for trained aerial observers.

- (4) Observation and reconnaissance aircraft are subject to attack by enemy aircraft and antiaircraft fire when operating over enemy-dominated terrain.

- (5) An intelligence-trained briefing/debriefing officer should be available to formally brief and debrief crew members before and after each flight.

9-3. Airmobile Operations

Thorough planning prior to an operation is a major factor in determining the degree of success to be achieved. Each commander and his subordinates must understand the sequence and timing of actions. A description of actions normally performed during airmobile operations, from receipt of an airmobile mission order until completion of the mission, is presented below. This description is for a deliberate, preplanned operation. Frequently, very little planning time will be available; however, the considerations and operating principles are valid. The ability to organize and execute a successful airmobile operation on short notice is a requirement most easily met by adhering

to SOP. FM 57-35 discusses airmobile operations in detail.

a. Actions Prior to Pickup.

(1) *Liaison.* After receipt of a mission, the aviation element is responsible for establishing liaison with the supported unit. For a company-size or larger lift, initial liaison is normally made by the aviation commander and his planning representative (liaison officer). Figure 8-1 illustrates a method of determining the distribution of liaison officers.

(2) *Reconnaissance.* Normally, the commanders of the aviation elements and the supported units conduct a flight reconnaissance of the area of operations. They consider possible flight routes, control points (easily recognizable terrain features), and LZ's, and select the en route flight altitudes which will be used in moving the AMTF from the PZ's to the LZ's. Reconnaissance programs must be constantly revised to avoid establishing habit patterns and regular schedules which invite compromise.

(3) *Planning.* The AMTF commander and the aviation commander establish a concept for the AMTF movement. Based on this concept and the knowledge gained on the reconnaissance, the planning staff formulates the detailed plan of operation and fire support.

(4) *Mission briefing.* A detailed aircrew briefing, to include the AMTF commander's tactical plan, is necessary for successful mission accomplishment. Rapidly changing conditions on the ground create situations which can be properly coped with only if everyone concerned is thoroughly familiar with all aspects of the plan in the air and on the ground. All units should use the same mission briefing sequence for each briefing to insure that personnel have all essential information. Mission briefings should be supplemented with recent vertical, oblique, and panoramic aerial photography to aid in pilot recognition of key terrain features. Checklist items (app C) which are not applicable to a specific mission may be omitted.

(5) *Radio check.* A radio check is used to determine if aircraft radios are functioning. The check is initiated by the flight leader prior to the first flight of each day. This check should be conducted in a manner that will avoid com-

promise of the operation.

(6) *Lineup.* Lineup is the procedure used to move aircraft to their designated formation positions. Lineup must be completed prior to troop loading to insure a practical working relationship between supported and aviation elements as planned. Lineup may be accomplished on the ground or in the air. Ground lineup involves hovering the helicopters from their parking positions to a designated lineup area in proper formation sequence. Ground lineup requires an area relatively free of obstacles which is smooth enough and large enough to accommodate the entire formation. This method of lineup must be precisely planned and executed to avoid confusion and to save fuel. Air lineup consists of taking off in proper sequence and achieving the desired formation in the air.

b. Movement to the Pickup Zone.

(1) The PZ is an area where the supported unit will load personnel and equipment onto supporting aircraft. The PZ is organized and controlled with the resources on hand in a manner best suited to the mission. Planning principles and considerations are given in chapter 8. Movement of the aviation element to the PZ is accomplished by following flight routes which avoid enemy positions, minimize enemy observation, do not interfere with friendly artillery fire, and allow ease of navigation. Flight routes that afford maximum security by avoiding major enemy positions and providing concealment from observation must be used. These routes may be described as prescribed paths above the terrain, or by use of a simple checkpoint system to allow ease of in-flight changes. Supporting fires from the artillery, helicopter weapons systems, and tactical fighter/bombers are needed since aircraft are vulnerable to ground fire while on approach to and within the PZ. On the ground in the PZ, aviation elements and ground units must disperse as much as possible to present the least lucrative target for enemy ground, artillery, or mortar attack.

(2) Movement to the PZ may be accomplished in a single unit formation or in separate formations, and must be conducted along planned primary or alternate flight routes to the PZ. Designated start points, aircraft con-

trol points, and PZ release points on the ground are used to control and monitor progress of the aviation elements en route to the PZ. The aviation elements must pass over established checkpoints on time in order to insure coordination with friendly ground, artillery, and air units. Timely arrival and reporting of checkpoints also insure successful and orderly arrival at the PZ.

(3) During movement, enemy antiaircraft fire may be encountered. Exposure time to antiaircraft positions should be minimized by avoiding positions of depth. It is frequently desirable to precede the lift formation with air cavalry elements to locate enemy positions prior to arrival of the lift formation. Therefore, escort must be responsive to the AMTF elements by radio call on a prearranged FM or UHF frequency. A crewmember of any aircraft receiving fire should identify the enemy location by throwing a smoke grenade or similar device to mark the vicinity for escort reference. The color of smoke or type of device used to designate enemy fire must be specified in the operations order. The escort should have sufficient firepower to neutralize or suppress enemy fire threatening the lift element. Artillery flak suppression fires may be used to supplement escorting armed helicopters.

(4) Armed helicopters may be organic to airmobile lift units or may be organized as separate companies. Airspeed and fuel limitations of these aircraft must be considered when determining the type of organization to be used. These limitations can be overcome by having several armed helicopters located along the flanks of the lift formation to permit continuous target engagement without requiring the escort to change relative positions around the lift formation. Target engagement may be passed from front to rear with the front helicopter ceasing fire as the following aircraft commences firing. Under certain load conditions, it may be necessary for the lift ships to proceed at slower airspeed, or over a modified route, to maintain relative position with the covering force.

(5) The speed of high performance aircraft gives them the capability of engaging numerous targets along the flight route and then overtaking the escorted formation. The

forward air controller (FAC) should be airborne in the vicinity of the main body to obtain maximum use of close air support aircraft. The FAC must be in radio contact with the command and control aircraft at all times.

(6) Escort is not always required. It is scheduled after consideration has been given to flight routes and altitudes, security of take-off point and PZ, known friendly and enemy situations, and weather. Escort aircraft may be assigned a particular area of responsibility over which airlift flights are routed. This is a preferred use of armed helicopters as compared with continuous escort from PZ to LZ, especially if the lift ships are not overly vulnerable to enemy fire during their flight.

(7) Formations selected by the aviation element en route are dictated by terrain, weather, and hostile antiaircraft fire. The formation may be varied at any time by the aviation commander or his representative. Aviation elements must arrive in the PZ in the formation mutually agreed upon for loading. This will minimize the possibility of confusion during loading.

(8) Terminal guidance is used to assist the formation in navigating from the release point (RP) to landing touchdown in the PZ. Terminal guidance may consist of any one, or a combination of, the following:

- (a) Pathfinder radio control in the PZ.
- (b) Panels, with prearranged colors, to designate lead aircraft landing points.
- (c) Nondirectional beacons operating at strategic locations.
- (d) Smoke grenades thrown in the PZ on call from the aviation commander.
- (e) Artillery or mortar units firing marking rounds near the PZ.
- (f) Aviation formation flight leaders using dead reckoning navigation procedures to locate the PZ.
- (g) Armed helicopters sent ahead by the aviation commander to locate the PZ.
- (h) Directions to the formation, flying at low level, provided by the pilot of another aircraft flying at a higher altitude.

c. Action in the PZ.

(1) *General.* For lifts of company size or larger, the aviation LO should be present in

the PZ to assist the supported unit in implementing the loading plan. At the PZ, the ground force and aviation units are joined into a tactical airmobile force. Last-minute planning adjustments are made by coordination between the AMTF commander and the aviation commander. From PZ to the LZ, the aviation commander, in response to the desires and instructions of the AMTF commander, controls the operation until the last lift has been accomplished and the aircraft are released.

(2) *Refueling and rearming.* The aviation commander is responsible for coordinating refueling and rearming time, place, and facilities with the AMTF commander. Normally, refueling and rearming will not be required at the PZ; however, there may be occasions when a forward area must be established at or near the PZ for this purpose. Units performing these services can be transported forward by vehicle, helicopter, or airplane. Fuel may be in collapsible containers, tank trucks, or fuel drums. Flight crews must know what the refueling/rearming plan is, and they must execute it as planned. Security of the forward refueling/rearming area is provided by the supported unit.

(3) *Final coordination.* Plans and orders for the AMTF must be simple and flexible. All leaders must be prepared to overcome unforeseen difficulties and to exploit opportunities that may arise during the operation. To maintain flexibility, the aviation commander and AMTF commander consider—

(a) That the success of the operation does not depend completely on the arrival of any one aviation element.

(b) Landmarks that are easy to locate and identify from the air.

(c) Preparation of alternate plans.

(d) The tactical integrity of both lifted units and aviation units in loading plans.

(e) Allowances for operational delays in takeoff and landings, and plans for corrective action.

(f) A plan for the disposition of aircraft with troops and equipment at the departure area.

(g) Alternate plans for the movement of troops and equipment by phases in the event

of a shortage of lift helicopters.

(h) That all plans are coordinated with the appropriate fire support elements.

(4) *Loading.*

(a) The aviation commander determines that loads are within the capability of the helicopters, and that they are properly secured so they will not create flight hazards. Many situations will require loading without preconceived plans and will necessitate load make up on site. The following basic principles apply:

1. Lifted units load tactically. All individuals carry only minimum essential combat equipment. Ammunition accompanies each weapon in minimum amounts necessary for mission accomplishment.

2. Aviation units provide a standard number of helicopters for the lift of a given type of supported unit.

3. Key personnel and equipment are distributed throughout several aircraft.

4. Each load is safely balanced and secured.

5. Items of equipment, with all parts and accessories needed to make them operational, are loaded in the same aircraft.

6. Crews accompany crew-served weapons.

(b) The unit to be lifted provides all essential equipment and personnel for sling loading, including hook-up teams. Sling-loaded helicopters normally are located at the rear of formations. In other situations, all helicopters of the formation may pick up sling loads. If simultaneous arrival of internally and sling-loaded helicopters is desired, the sling-loaded helicopters hook up and depart prior to the remainder of the formation. Factors that favor external loading of supplies and equipment are short distance hauls, outsized equipment, impossible landing in the area of operation, precise placement desired, and landing areas coming under fire. The sling-load signalman is responsible for guiding the helicopter by hand-and-arm signals to a point and altitude over the load which will permit the hookup.

d. Pickup Zone to Landing Zone.

(1) *General.* En route between the PZ and the LZ, the AMTF commander and the

aviation commander are normally located in the same command and control helicopter. Loading, takeoff from the PZ, and assembly of the helicopter formation are accomplished according to a mutually planned time schedule that will place the load elements of the first lift in the LZ at H-hour—the time the AMTF commander has designated as touchdown time in the LZ.

(a) *Control points.*

1. *Start point (SP).* The SP is the point over which the AMTF flies to indicate timing and establish flight route heading and altitude.

2. *Air control point (ACP).* The ACP is a geographic location along a flight route used for control of movement of air elements.

3. *Release point (RP).* The RP is a readily identifiable point on the ground over which individual flight elements are released to proceed to their LZ. The time from the RP to touchdown in the LZ is known as the terminal guidance phase.

(b) *Flight route.* Use of designated flight routes permits more precise timing and insures that the AMTF does not overfly undesirable areas. Each lift on a multiple lift assault should use a different flight route.

(c) *Ground fire suppression.* Any available fire support means may be employed to suppress enemy ground fire. Artillery and tactical air normally are available for this purpose. Organic aircraft are used for route reconnaissance, protection against ground fires, assistance in controlling the AMTF, and LZ preparation and reconnaissance immediately prior to air landings.

(2) *En route.*

(a) *Lift-off.* Simultaneous lift-off from the PZ is desirable because it enables escort and fire support elements to provide more effective cover, and presents the formation as a target to ground fire for a shorter time. However, under some conditions—such as an extremely dusty PZ, a restricted LZ, or a high density altitude condition—the formation should be broken into small increments for takeoff.

(b) *Join up.* The flight leader adjusts the speed and rate of climb of his flight to insure that all elements of the flight close the

formation at the required altitude. Trail aircraft report when all aircraft have closed into formation.

(c) *Flight control.* The flight route is defined by ACP which may be identified by visual reference or by electronic navigational facilities operated by pathfinders. If the LZ is to be changed, the AMTF commander makes the decision and informs the aviation commander.

(d) *Fire support en route.* Armed helicopters provide security for the AMTF formation, security for downed aircraft, route reconnaissance, and other assistance en route as desired by the aviation commander.

(e) *Release point (RP).* Over the RP, the AMTF may be divided into subelements which proceed to assigned LZ's. Multiple LZ's are designated to allow flexibility in event of wind changes, hostile fire, or a change in the ground tactical situation.

(f) *Landing zone preparation.* The LZ may be prepared by artillery, TAC air, or armed helicopters, or any combination of the three.

(3) *Landing.* Prior mutual planning must include the AMTF commander's desired course of action should the force receive heavy ground fire just before landing. A simultaneous landing is desired to place the maximum number of troops on the ground in a given area in the shortest possible time. Upon landing, the troops disembark immediately and move rapidly into the tactical formation called for by the AMTF commander's plan. An immediate air defense of the LZ must be established. To avoid hazardous conditions for subsequent lifts into the site, off-loaded personnel and materiel must be quickly moved out of the LZ.

(4) *Helicopter direct fire support.* The AMTF commander may direct that the armed helicopters remain in the vicinity of the LZ to provide direct fire support to maneuver elements operating near the LZ.

(5) *Evacuation.* Casualties and other personnel to be evacuated while the buildup is in progress should be moved to a designated air evacuation point in the LZ. More efficient use of aircraft may be obtained during extractions from small and distant LZ's if an intermediate

assembly area can be established to create adequate loads for helicopters over the greater distance to the rear base.

e. Recovery of Downed Crews and Aircraft. Crew recovery will be made only as the mission permits. Mission requirements have priority over either aircraft or crew recovery. A recovery aircraft should be designated for each airmobile operation. Normally, it will be crewed by an aircraft maintenance officer, maintenance personnel, and aviators as required. A toolbox and parts for minor repair should be on board the recovery aircraft. If aircraft recovery is not possible, the crews, SOI, weapons, ordnance, and radios should be removed and recovered in that order of pri-

ority. Armed helicopters will normally accompany the recovery helicopter to protect it and the downed aircraft. Downed aircraft should be destroyed only as a last resort. The unit SOP should state the authority that establishes when destruction is necessary.

f. Weather Conditions. Although the AMTF can conduct operations under most weather conditions, severely adverse weather can cause modification or delay of airmobile assault operations. However, it may be possible to use adverse weather conditions to an advantage. For example, concealment from enemy observation afforded by adverse weather may be used to increase the possibility of achieving surprise.

Section II. NIGHT AIRMOBILE OPERATIONS

9-4. General

Properly planned and executed night airmobile operations give friendly forces a tactical and psychological advantage over the enemy. Where the enemy relies on the cover of darkness to provide him the freedom of action necessary to conduct and support combat operations, night airmobile operations give friendly forces an opportunity to disrupt, disorganize, and demoralize the enemy's night effort. Night operations require more detailed planning than day operations (see FM 57-35). Early liaison and planning will save time, and will develop a mutual understanding of requirements. This section discusses additional planning considerations for night airmobile operations.

9-5. Reconnaissance

Both day and night reconnaissance are necessary for planning most night airmobile operations. Day reconnaissance is necessary to provide the AMTF and mission commanders and their staffs with a basic knowledge of the terrain. Night reconnaissance, preferably under light conditions similar to those expected during the actual operation, is necessary to determine the visibility of control points and LZ's and to give an accurate check on the reliability of the navigational methods to be used.

9-6. Interdiction

When night observation means are available, interdiction operations can be conducted at night to deny the enemy free use of both land routes and waterways. One technique which has been successfully used is for a helicopter equipped with a searchlight to locate and illuminate enemy troops or watercraft for destruction by attack helicopters.

9-7. Night Planning Considerations

Pathfinders can provide highly essential services at the aviation base, in the PZ, and en route to and at the LZ. These services may be provided through use of obstruction lights, glide slope lights, landing lights, nondirectional beacons, radio voice control, and light guns. Other planning considerations for night operations include the following:

a. PZ's and LZ's should be larger than those required for day operations to reduce the possibility of tree strikes.

b. Navigation is more difficult at night than during daylight, especially since crews normally have more experience in daylight navigation.

c. Better weather conditions are often required to permit flying at altitudes that will give positive terrain clearance.

d. Areas with heavy dust should be avoided.

e. A positive, detailed aircraft control plan

must be used at the aviation base and in the PZ and LZ. Flight crews must be thoroughly familiar with planned control procedures from which no deviation can be permitted except in an emergency.

f. Visually directed hostile antiaircraft fires are less effective at night.

g. Flare aircraft should be on air alert and immediately responsive.

h. Searchlight helicopters may be used to illuminate PZ's and LZ's, and enemy targets for armed helicopters.

9-8. Night Fire Support

It is often necessary to use artillery fires more extensively at night than during daylight to compensate for the reduced effectiveness of aerial firepower. Fire support elements must rely on prearranged communications and visual signals, known to be effective at night, to identify friendly troop locations.

9-9. Aircraft Operating Considerations

It is desirable to complete during daylight all possible aircraft preparations such as fueling and arming, preflight inspection, and ground lineup of aircraft.

Section III. ARMED HELICOPTER OPERATIONS

9-10. General

Armed helicopters, to include attack helicopters, usually operate in teams of not less than two aircraft. A team of two is known as a light fire team; a team of more than two aircraft is known as a heavy fire team. FM 1-110 discusses the employment of armed helicopters in detail.

9-11. Missions

The missions of armed helicopter units are classified as *escort*, *reconnaissance and security*, and *direct fire support*.

a. Escort. Escort missions include the escort of lift helicopter formations and of ground convoys.

(1) *Aerial escort.* In the aerial escort of helicopter formations, the fire teams may fly on the flanks or slightly ahead of the formation, and may be at any altitude appropriate to the task. The preferred level is at an altitude lower than the formation to give the escort the advantage of tactical surprise and better observation of ground targets. In this type of escort, the mission of the escorting helicopters is to suppress or neutralize enemy ground fire sufficiently to allow the lift formation to pass through or around the danger area. Destruction of enemy positions or personnel, while desirable, is not required by the escort mission. The limited speed differential between lift and escort helicopters does not always allow the

escort to spend the time required to engage and destroy a target. Once the lift formation is clear of a particular danger area, the escort aircraft regain position with the formation to continue the escort mission. When lift helicopters are flown at higher altitudes to avoid ground fire, it may be necessary for the escort to provide protection only at critical points along the flight route such as during approach to the LZ, while troops are unloading in the LZ, and during departure. The armed helicopters may be used in reconnaissance and security of fire support missions during the periods in which they are not needed for en route escort.

(2) *Ground escort.* The unit may be given a mission to escort a ground convoy. This escort mission is performed in about the same manner as a reconnaissance and security mission. The objective is to provide for the uninterrupted movement of the convoy and early warning of possible ambush or attack.

b. Reconnaissance and Security. Armed helicopters provide for excellent observation and the necessary mobility to cover relatively large areas. The armament systems provide the necessary means for reconnaissance by fire and sufficient firepower to effectively engage enemy elements. Aerial reconnaissance and security utilizes all of the time-proven reconnaissance and security principles used by ground elements. FM 17-36 contains reconnaissance and security doctrine for air cavalry units.

c. *Direct Fire Support.* Armed helicopter fires may be integrated into the fire support plan of the ground force along with organic mortars, supporting artillery, and supporting fires provided by other Services; or it may be the only nonorganic fire available to support the ground maneuver. There are basically two types of direct fire support which can be provided by armed helicopters—area fire and point target fire. *Area fire* is placed on a rather large target area—one in which specific targets have not been identified—and is intended primarily to suppress possible enemy fire by causing the enemy to remain immobile or to seek cover. *Point target* fire is fire directed at a point target with intent to destroy. Point targets include bunkers, river barges, and hard targets such as armored vehicles. Close-in protective fires can be delivered in support of friendly troops, provided the aircraft crew (1) is fa-

miliar with the tactical situation, (2) has positively identified friendly positions, (3) has radio contact with the supported forces, and (4) point target methods are used. Area fires are too inaccurate for use in close support of friendly elements. Friendly units should mark their most forward elements or perimeter by some means identifiable from the air. All participants in the airmobile operation must understand the prearranged signals.

d. *Night Operations.* Night operations can be effectively conducted by armed helicopter units. Reconnaissance missions can be very effective in moonlight or under flare illumination. Armed helicopters can effectively attack targets which are illuminated by floodlights, flares, or illumination rounds. Daylight reconnaissance should be accomplished by the aircraft crews scheduled to conduct night operations.

Section IV. AIRMOBILE SUPPORT OPERATIONS

9-12. General

Following is a discussion of airmobile support operations applicable to assault support helicopter battalions and companies:

a. *Actions Prior to Departure.*

(1) *Liaison.* The liaison officer is dispatched to the supported unit upon receipt of the mission by the aviation unit. The number of liaison officers required is dependent upon the size and number of units to be supported. For clarity, the following examples are cited:

(a) An assault support helicopter battalion is placed in direct support of an artillery battalion. The aviation battalion commander or liaison officer reports to the supported battalion headquarters, and liaison officers are sent to each firing battery which is to be lifted.

(b) The assault support helicopter battalion is placed in general support of a division, with priority of lift to the division artillery. A battalion liaison officer is dispatched to division artillery headquarters. As the missions are received, company liaison officers are dispatched to the supported units.

(2) *Final plans and orders.* Assisted by the information provided by the liaison officer,

the AMTF commander completes his plans and issues his order. The liaison officer delivers the order to the assault support helicopter battalion commander. The aviation staff then formulates the unit operations order and delivers it verbally to allow as much time as possible for subordinate units to complete their planning and brief all personnel involved in the operation.

(3) *Preparations in the assembly area.* Preparations in the assembly area include the inspection of personnel, equipment, and aircraft. The assault support helicopters are checked to insure that each is mission ready. Aircraft commanders insure that crewmembers have needed equipment.

(4) *Selection of refueling and rearming sites.* When the battalion is attached or under operational control, refueling/rearming sites are selected by the AMTF commander upon the advice of the aviation LO. In a direct or general support role, the site selection is the responsibility of the assault support helicopter battalion commander. Close coordination must be maintained with supporting elements to insure the availability and delivery of adequate fuel

and ammunition to accomplish assigned missions.

(5) *Movement to the pickup zone.*

(a) *General.* The PZ is selected by the AMTF commander based on the advice of the aviation liaison officer. Movement to the PZ is performed by following prescribed flight routes which have been planned to afford maximum security. The supported unit is loaded into unit aircraft at the PZ for movement to the LZ.

(b) *Supporting fires.* Enemy antiaircraft fire may be encountered during movement to the PZ. Although exposure to fire is minimal unless the enemy is defending in great depth, a strike capability should be available to counter or destroy the enemy antiaircraft positions. Armed helicopters are best suited to perform this mission; however, other fire support means such as artillery or fighter aircraft can be used.

(c) *Organization for movement.* Aircraft must be organized for movement to the PZ and LZ in the same formation and sequence. Additional personnel to assist in refueling operations and ground control may accompany the aircraft to the PZ.

(d) *Formations.* The type of formation used is dependent upon the nature of the terrain, enemy antiaircraft activity, and configuration of the PZ.

(e) *Terminal guidance.* During daylight operations, terminal guidance is provided by radio communications and ground guides to position the lead aircraft of each flight platoon. For night operations, pathfinder personnel and equipment are used for terminal guidance.

b. *Actions in the Pickup Zone.*

(1) *Parking and refueling.* Provisions are made for parking and, if possible, refueling of all aircraft. Normally, this task is performed by the aviation commander and a ground representative prior to arrival of the aircraft.

(a) *Parking.* The positioning of aircraft for loading must conform to the type of unit to be airlifted. If troops and materiel are ready for immediate airlift, the aircraft are landed at the loading points. Should the aircraft be required to remain in the PZ for extended periods, they should be parked along the tree lines to provide a degree of concealment.

(b) *Refueling and rearming.* Fuel and ammunition should be placed at or between aircraft landing and loading points to facilitate refueling, rearming, and loading.

(2) *Mass movement.* Mass movement of large units from a centralized location is often a mission of the assault support helicopter unit. This type movement allows for maximum speed in refueling and loading operations; however, space requirements are critical, and access roads must be available to accommodate arriving traffic. In this operation, chalk numbers for aircraft and central movements control stations or points are used. Air traffic regulation is a critical factor because of the necessity for an orderly flow of outbound and inbound traffic. Although this method of unit and equipment pickup maximizes efficiency in an operation, it may invite enemy air attack.

(3) *Final coordination.* To insure maximum effectiveness and flexibility, the aviation mission commander finalizes his plans in coordination with the supported unit commanders in the PZ, insuring that alternate plans are made; allowances are made for operational delays in takeoffs, landings, and refueling operations; unit tactical integrity is maintained in the loading phase; and all previously made plans for air defense, refueling, and fuel resupply are on schedule.

(4) *Loading.*

(a) Loading is seldom accomplished under ideal conditions. Often space is restrictive, terrain is rough, weather is bad, or loading is conducted in darkness under blackout conditions. When time is not available to make detailed loading plans, all loads must be made up on-site and loaded concurrently with movement planning. Speed, efficiency, and the maintenance of unit integrity require a coordinated effort by all concerned. The failure of any individual to do his part can cause delay in take-off and mission accomplishment. To achieve proper coordination, maximum use is made of the chain of command through rapid, effective liaison with the supported unit in the PZ.

(b) Effective loading operations are characterized by having key personnel distributed in several aircraft; loads equally distributed among the aircraft; loads properly bal-

anced and lashed; crews with their assigned crew-served weapons; external load requirements known and in proper position for coordinated, sequential pickup and movement; and standard loads used when possible.

(c) Sling load operations are characterized by special rigging requirements, air-speed restrictions for certain type loads, the need for sufficient ground hook-up personnel, increased vulnerability to enemy fires, and the possible compromise of information to the enemy on the type of operation.

(d) Loading times vary with the type load to be handled and the conditions under which they are loaded. For example, the manual handling of howitzers is more time consuming over rough terrain than flat terrain, and is even more time consuming when accomplished during the hours of darkness.

c. *Actions En Route.* The assembly of elements of the assault support helicopter unit en route from the PZ is closely coordinated by the aviation commander controlling the lift movement. The takeoff and assembly phase is planned backward from the designated H-hour to provide for arrival in the LZ at the precise time specified which is normally after advance elements have secured the LZ. The flight route, usually selected by the aviation commander, avoids known enemy positions and takes maximum advantage of terrain cover. The remaining actions en route are similar to those discussed in paragraph 9-3.

d. *Actions in the Landing Zone.*

(1) The aviation commander carefully supervises unit action in the LZ. Major considerations in this phase are—

(a) Actions upon receiving enemy ground fire.

(b) Unloading time in the LZ.

(c) Takeoff route from the LZ.

(d) Route from LZ to subsequent position, refueling point, or mission.

(e) Use of armed helicopters in the LZ to provide cover and suppressive fires.

(f) Release of supporting aerial fire elements.

(g) Rescue of crews of downed aircraft in the LZ.

(2) Aircraft sequence of takeoff must re-

main the same as during the landing to avoid confusion and flight hazards. Unit commanders or platoon leaders notify their commanders of downed aircraft, unloading delays, or other malfunctions or problems that may delay a prompt departure. Exposure time must remain minimal.

e. *Subsequent Actions.*

(1) *General.* After departure from the LZ, units or elements of the assault support helicopter unit rejoin the air column in their respective assigned positions. When the unit is reformed, it may proceed to the next mission, or revert to a specific mission or contingency, as required. In the event of an enemy counter-attack subsequent to LZ departure, no return to the LZ is made unless directed by the AMTF commander. Normally, the unit consolidates by assembling all aircraft in flight in a formation under the control of the aviation commander, or by assembling in a predesignated laager area. Normally, this laager area is well removed from the objective areas but close enough to provide optimum response in the event of situation changes, failure to make contact, mission change, or if return to the LZ is directed by the AMTF commander for the purpose of pursuit of the enemy. Laager areas should not be readily accessible to enemy penetration or probes.

(2) *Refueling and rearming.* It is desirable, and often necessary, to have ammunition and bulk fuel prepositioned in forward areas to provide rapid mission turnaround for the assault support helicopters.

9-13. Combat Service Support

The combat service support discussed here is the miscellaneous aircraft support required as a result of combat operations.

a. *Resupply.* Resupply is basically a simple mission of transporting materiel from one point to another by aircraft. During combat operations, these simple requirements may become complex and confused. The aviation commander and liaison officers can minimize confusion by insuring that the supply requirements are received from the ground commander at the earliest practicable time and are coordinated with the supported unit's S4 to establish aircraft loading plans for accomplish-

ing the resupply missions. Resupply must be accomplished in an organized manner to preclude units' receiving the wrong supplies, and to minimize exposure time of aircraft once they enter the combat operational area. The aviation commander must make certain the ground commander is informed of conditions that may limit resupply by aircraft; e.g., weather, availability of aircraft (for lift and armed escort), and limitations imposed by fuel and ammunition.

b. Aircraft Recovery. Aircraft recovery must be handled quickly to minimize the interference of the recovery operation with the primary objective of the combat forces. The only preventive measure that can be taken by a commander is to insure that all members of his command are thoroughly trained to recognize

and analyze the emergency conditions quickly in order to minimize damage upon landing. In some cases the aircraft may be flown to a secure area before landing. Once the aircraft is on the ground, the unit maintenance personnel will determine if it can be repaired and flown out. If not, the standby aircraft recovery team from the direct or general support maintenance company will be responsible for rigging and removing the aircraft to a secure area or airfield. The unit maintenance personnel will remove loose equipment and, if the aircraft recovery team is not immediately available, rig the aircraft for recovery. If the tactical situation is such that there is not time for the aircraft recovery operation, the aircraft will be stripped of combat equipment and abandoned or destroyed, depending on the commander's decision.

Section V. SPECIAL MISSIONS

9-14. General

In addition to the aviation support normally provided by the nondivisional aviation units, the requirement often exists for the use of Army aviation in a special role. These missions usually require that one or more helicopters be used to conduct a mission which *may or may not* be directly related to the surrounding tactical situation. When such a requirement exists, the aviation unit commander is thoroughly briefed on the details of the undertaking and makes recommendations on mission execution based on aircraft availability, aircrew special training, and immediate future requirements. Special missions of this type may include feints; raids; search and rescue; exfiltration-infiltration; nuclear, biological, and chemical operations; illumination; and support of psychological operations.

9-15. Feints

Because of the speed and mobility of the assault helicopter elements, the feint is well suited for the simulated maneuvering of combat forces from one location to another. Pretending to extract a combat unit from one location and combat assault landing into an-

other causes the enemy force to react in such a manner that the major portion of his fighting element may be caused to displace. By doing this, the controlling ground commander can gain a significant tactical advantage over his opponent. The rapidity with which the feint may be conducted allows the ground commander maximum time for planning and deployment. Planning must be detailed and specific to achieve the desired effect. Since the range of an FM transmitter increases greatly with elevation, electronic deception might be used to make the feint more effective. For example, commands between ground control and the feinting force can be carefully planned to mislead the enemy, who can be assumed to be intercepting friendly communications.

9-16. Raids

Conducting raids deep behind enemy lines is a mission particularly well suited to air-mobile forces. The distance over which the raid can be conducted depends on the range of the aircraft involved. Normally, in order to create maximum surprise, only one or two aircraft are involved in such a mission. Strategic locations can be surprised and destroyed in rapidly executed penetrations and the raiding

force quickly extracted. When planning a raid, full consideration is given to the range and speed of the delivery aircraft. Tactical fire support—both air and artillery—is usually planned for, along with the use of armed helicopters to provide en route protection.

9-17. Search and Rescue

If an aircraft becomes lost, certain actions and precautions must be taken to insure that search and rescue operations are conducted properly. Procedures for conducting search and rescue operations are normally outlined in the individual unit SOP and will vary according to the terrain over which aviation support is being provided (FM 1-105).

9-18. Exfiltration-Infiltration

Exfiltration-infiltration missions can be conducted to remove friendly forces or downed aviation personnel from behind enemy lines, or to place friendly elements behind enemy lines in a guerrilla capacity. When conducting such a mission, accurate and timely intelligence information must be available. Each crewmember must be thoroughly trained in the art of low level navigation over great distances. Survival is of primary importance since most missions of this nature are conducted on a single aircraft basis. Exfiltration-infiltration missions are the exception rather than the rule; however, when the requirement exists, the unit must be prepared to fulfill it.

9-19. Nuclear, Biological, and Chemical Operations

a. Employment. Army aviation affords the ground commander the increased mobility and flexibility required to conduct nuclear, biological, and chemical operations. Materiel needed for these operations includes weapons, delivery devices, agents, and protective equipment. Support which aviation elements may provide to land forces conducting nuclear, biological, and chemical operations includes the—

(1) Transport of nuclear, biological, and chemical materiel from dispersed supply points to combat forces for immediate employment.

(2) Air movement of combat forces conducting operations.

(3) Aerial dissemination of riot control agents, defoliants, and smoke munitions.

b. Protection. Protection which aviation elements can provide against enemy nuclear, biological, and chemical attacks consists primarily of actions to reduce the effects of such attacks upon friendly forces, to include—

(1) Preparing and relaying early burst reports.

(2) Airlifting protective equipment to critical areas.

(3) Conducting aerial surveys and chemical detection.

c. Recovery. Following a nuclear attack, aviation elements can assist ground forces in quickly regaining an effective operational status by providing airlift to redistribute troops and materiel within the ground force and to relieve severe shortages in units most seriously affected by the attack. Initial decontamination efforts are confined to those areas containing critically needed supplies and equipment. Commanders must arrange to operate with available supplies and equipment until resupply can be accomplished. Combat service support functions will be concentrated on alleviating shortages in priority areas during the resupply period.

9-20. Psychological Operations (PSYOP)

Since psychological operations are conducted by communicating with the individuals and groups towards whom the operations are directed, Army aircraft can be used to assist in the performance of many of the tasks necessary for the success of these operations. Aircraft can be used to assist in distributing printed matter, to relay voice messages by use of loudspeaker equipment, and to transport PSYOP personnel to areas in which operations are to be conducted.

9-21. Illumination

Illumination operations normally are conducted by elements of the U.S. Air Force; however, the requirement may also exist for Army helicopters. The use of flares to pinpoint definite locations or illuminate minimum lighted areas is common. Operations of this nature are well within the aviation commander's jurisdiction, and normally are explained in detail in the unit SOP.

Section VI. PATHFINDER OPERATIONS

9-22. Mission

a. The primary mission of the pathfinder detachment is to provide navigational assistance to Army aircraft through operation of en route navigation, air landing, or air delivery facilities in friendly, enemy-threatened, or enemy-dominated areas.

b. Additional missions for the pathfinder detachment are to assist lifted units in preparing and positioning loads and to provide guidance to aircraft arriving in the PZ. When limited pathfinder resources are available, priority will be given to LZ control and navigational assistance (FM 57-38).

9-23. Capabilities

Pathfinder detachments are capable of—

a. Infiltrating objective areas by land or air means.

b. Indicating with electronic and visual navigation aids the desired directions and routes of movement for aircraft and the identity of selected points on the terrain; the identity and location of air landed delivery areas; emergency ground-to-air signals; direction of landings, runways, taxiways, and parking areas for airplanes; directions and points of landing for helicopters; and the presence of obstacles to aircraft operations.

c. Furnishing aviators, tactical commanders, and higher headquarters with information relative to the enemy and friendly situation, wind, weather, visibility, and terrain conditions of delivery areas. Providing advisories on artillery fires when artillery units are positioned in or immediately adjacent to LZ's.

d. Providing aircraft commanders the necessary controls, including directions, times, landing sites, traffic patterns, location times, and altitudes; and providing taxi, hover, parking and takeoff instructions.

e. Indicating by visual aids the location of aircraft parking and unloading points, the initial direction of movement, and the designated assembly points for equipment and supplies.

f. Furnishing operators to provide radio and limited wire communications within landing zones, and between these zones and the head-

quarters directing the operations.

9-24. Limitations

Organic personnel and equipment strength of pathfinder detachments require that their employment be limited primarily to aircraft guidance. It is necessary that these detachments be augmented by additional personnel from a supported unit to—

a. Provide security.

b. Remove major obstacles.

c. Recover and assemble equipment and supplies.

d. Operate additional ground net radios and telephones.

e. Transport items of equipment.

9-25. Initial Coordination

At the earliest practicable time, the appropriate level commander issues a warning order alerting the pathfinder unit to its forthcoming support mission. As soon as possible after receipt of the warning order, the pathfinder commander establishes liaison with the commander of the supported aviation unit and joins the battalion staff in planning the operation.

9-26. Joining with the Supported Unit

a. Pathfinders join the supported unit at the appointed time and place. Final coordination between the AMTF commander, aviation commander, and pathfinder commander is accomplished at this time. This coordination includes the following:

(1) Ground tactical plan.

(2) Departure area and time.

(3) Loading plan.

(4) Air movement plan.

(5) Landing plan.

(6) Unloading plan.

(7) Assembly plan.

b. The pathfinder detachment and the aviation unit are designed to support the tactical operations of the ground unit commander. LZ's are selected to support the ground tactical plan. If sufficient pathfinder personnel and equipment are available, several LZ's may be operated within the same airhead. Alternate

LZ's and the circumstances under which they will be employed must be prearranged for emergency use.

c. The landing plan supports the aircraft unloading plan. The initial assembly of troops, supplies, and equipment in preselected areas is designed to support the ground tactical plan. Unloading and assembly operations are conducted so as to cause minimum interference with arriving and departing aircraft. Aircraft, personnel, supplies, and equipment must be rapidly cleared from the landing and parking areas in order to accomplish this. Since only tentative directions of landing and areas for landing and parking can be determined before the pathfinder reconnaissance is completed, specific unloading and initial assembly points cannot be designated until after pathfinders have arrived in the objective area. Upon arrival, pathfinders designate exact unloading and initial assembly points as near the preselected unit assembly areas as practicable. From initial assembly points designated by pathfinder personnel, individuals move to preplanned unit assembly areas prescribed by the unit commander. The aircraft landing plan should assure that the desired personnel and equipment are delivered in the objective area at the time and place prescribed. The plan should permit maximum numbers of aircraft deliveries in a minimum amount of time. Efficiency of the plan will depend upon the capabilities of the pathfinder and aviation units involved.

d. The movement plan includes delivery of pathfinders and main assault elements. Routes to and from the landing zones are selected to provide maximum protection to aircraft, to maintain the security of the operation, and to support the landing plan. Pathfinders assist in the movement of the main element by operating navigation aids and furnishing guidance and control to the aircraft. In the airhead, pathfinders control the activities of all aircraft within the LZ to insure safe and efficient operations. Recognized pilot prerogatives in emergency situations remain in effect. Pilots will make every effort to inform pathfinders of emergency measures being planned or taken.

e. Consideration should be given to furnishing artillery, armed helicopter, and tactical air support to the pathfinder party on call.

9-27. Coordination

Commanders of ground and aviation units coordinate and preplan the details of operations which require pathfinder assistance. The pathfinder detachment commander may make recommendations on the location of the LZ, the landing formation, and the time schedule to be followed. The aviation unit commander coordinates with the ground unit commander on such matters as flight formation, time schedule, primary and alternate routes, communications checkpoints, and types of loads.

9-28. Final Preparations

Based upon coordinated plans for the operation, the pathfinder commander requests any necessary augmentation of personnel and equipment. When reinforced, the pathfinder party remains under the full command of the pathfinder commander, who is responsible for the functions of the entire team. A final weather and operation briefing is held at the departure area just prior to departure. A final coordination meeting with the ground and aviation unit commander and the pathfinder pilots also is held at this time.

9-29. Method of Delivery

Pathfinders can be delivered by any of a variety of ground, sea, or air transportation means. Introduction of pathfinders into an objective area is a critical operation and must be carefully planned and executed if secrecy is to be maintained and the overall mission accomplished according to plan. The most efficient method of delivery is air landing by helicopter, as assembly problems are greatly reduced for the pathfinders. However, if time is available and a higher degree of secrecy is required, pathfinders may be parachuted onto or near the objective area. In either situation, consideration must be given to air landing or parachuting into areas away from the actual objective area and infiltrating on foot to the intended helicopter landing sites.

CHAPTER 10

AIR TRAFFIC REGULATION

10-1. General

The airspace over the combat zone has a number of common users. It is used for surface-to-surface fire support, surface-to-air fire support, electronic warfare means, and aircraft of all participating services. The joint force commander establishes measures to prevent or minimize interference among the operations of all services in the airspace to allow each service component full exploitation of its assigned means and capabilities. The Air Force component commander and the Army component commander recommend to the joint force commander the coordination altitudes and air traffic regulation procedures required within the combat area. The Army component commander is responsible for establishing an airspace regulation system for the block of airspace placed under his control by the joint commander. This block usually will consist of that airspace below the coordinated altitude which covers the Army component commander's area of operation. The block usually includes specified airspace over enemy territory in which organic Army aircraft are expected to operate. The airspace regulation system may consist of simple agreements to establish SOP, or it may be a more complex system employing an aviation air traffic control company. This chapter discusses a typical regulation system as developed by an aviation air traffic control company. Where this type of support does not exist, the aviation units will regulate all organic and attached aircraft. Flights to be conducted under IFR will comply with the existing in-country flight regulation system or be restricted to airspace as coordinated through higher headquarters. FM 1-60 provides guidance for the Army air traffic regulation and identification system.

10-2. The Aviation Air Traffic Control Company

The Army air traffic regulation system is established and coordinated by an aviation air traffic control company. This company may operate under the staff supervision of the army or corps aviation officer, or it may be attached to an aviation group or brigade. The company is capable of regulating air traffic under VFR and IFR conditions in accordance with the procedures contained in TM 11-2557-27, establishing navigational aids employing the criteria contained in TM 11-2557-26, providing air warnings, and furnishing other assistance such as weather advisories and flight-following.

a. Flight Regulation Platoon. The flight regulation platoons are the basic organizational components of the air traffic regulation system. Each platoon contains a headquarters, one flight operations center (FOC), and two flight coordination centers (FCC).

(1) The FOC accomplishes the planning, coordination, administration, and communications necessary for the continuous operation of an air traffic regulation system. The FOC has direct communications with the Army air defense command post, tactical operation centers (TOC), Air Force air warning service, and Air Force control reporting center in order to keep abreast of the operations taking place and comply with the airspace utilization plan prepared by the air defense element of FATOC.

(2) Each FOC has an assigned area of responsibility. The FOC is responsible for the regulation of airborne aircraft within its area, excluding airfield control zones. Airfield control zones are established in accordance with specific procedures issued by the agency re-

sponsible for the overall air traffic control system. They usually include the area within a 5 nautical mile radius of the airfield, and extend from the surface to the specified coordinating altitude.

(3) The FCC provides an extension of communications for the FOC. In the army area, FCC are located where they can best serve their purpose. In the corps area of responsibility, FCC's are located forward in the vicinity of division rear boundaries or in the division area itself, and may serve from one to three divisions, depending upon the volume of traffic and the size of the corps area. The FCC serves as a communications link between the terminal facilities of base airfields, TOC, and the FOC. It "hands off" en route traffic to appropriate terminals or other en route facilities and provides air warning and other services associated with the Army air traffic regulation system.

b. Navigation Platoon. There are 12 beacon sections in the navigation platoon. They are used to establish systems of airways and navigational checkpoints throughout the field army area.

10-3. Services of the Flight Operations Center

Services of the FOC which are used by aviators participating in missions of all types

include the following:

a. Control of Traffic. The FOC controls all IFR traffic.

b. Flight-Following. The FOC provides aircraft flight-following services upon request.

c. Warning Advisories. The FOC advises in-flight aircraft of specific actions taking place that might affect safety of flight; i.e., air attacks, CBR attacks, artillery fires, and enemy jamming and imitative communications deception.

d. Weather Advisories. Weather advisories are broadcast for conditions that might affect aircraft operations. A standby weather frequency is provided for aviators to use for receiving weather information and transmitting pilot reports (PIREPS).

e. Flight Passage into Air Force or Navy Controlled Airspace. The agreement between the component commanders governs actions necessary for flights into airspace controlled by another service. The Army aviator will normally use the FOC to request permission to fly through Air Force or Navy airspace. Even where the agreement does not require prior notification, aircraft flying in a FOC-regulated area must maintain contact with the FOC to promote safety of flight and to avoid interfering with operations being conducted by other units.

APPENDIX A

REFERENCES

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AR 750-1	Maintenance Concepts.
DA Pam 108-1	Index of Army Films, Transparencies, GTA Charts, and Recordings.
DA Pam 310-series	Military Publications Indexes.
FM 1-5	Aviation Company.
FM 1-10	Army Aviation Organizational Aircraft Maintenance.
FM 1-15	Aviation Battalion.
FM 1-100	Army Aviation Utilization.
FM 1-105	Army Aviation Techniques and Procedures.
FM 1-110	Armed Helicopter Employment.
FM 3-8	Chemical Reference Handbook.
FM 3-10	Employment of Chemical and Biological Agents.
FM 3-12	Operational Aspects of Radiological Defense.
FM 3-50	Chemical Smoke Generator Units and Smoke Operations.
FM 9-6	Ammunition Service in the Theater of Operations.
FM 21-5	Military Training Management.
FM 21-6	Techniques of Military Instruction.
FM 21-30	Military Symbols.
FM 21-40	Chemical, Biological, and Nuclear Defense.
FM 21-48	Chemical, Biological, and Radiological (CBR), and Nuclear Defense Training Exercises.
FM 21-76	Survival.
FM 21-77	Evasion and Escape.
FM 24-1	Tactical Communications Doctrine.
FM 29-22	Maintenance Operations in the Field Army.
FM 30-5	Combat Intelligence.
FM 30-20	Aerial Surveillance-Reconnaissance, Field Army.
FM 30-20-1	Aerial Surveillance—Reconnaissance, Field Army (Aerial Surveillance Company).
(TEST)	
(C) FM 32-5	Signal Security (U).
(C) FM 32-20	Electronic Warfare (Ground Based) (U).
(C) FM 32-20-1	Electronic Warfare (Ground Based) (TEST) (U).
FM 41-10	Civil Affairs Operations.
FM 54-8 (TEST)	The Administrative Support, Theater Army (TASTA-70).
FM 55-10	Transportation Movements, Services, and Units in the Field Army.
FM 55-45	Aircraft Maintenance Service in Units in the Field Army.

FM 1-20 (TEST)

FM 55-46	Army Aviation Transport Services and Units in the Field Army.
FM 57-35	Airmobile Operations.
FM 57-38	Pathfinder Operations.
FM 100-5	Field Service Regulations—Operations.
FM 100-27/AFM 2-50	U.S. Army/U.S. Air Force Doctrine for Tactical Airlift Operations.
FM 101-5	Staff Officers' Field Manual: Staff Organization and Procedure.
FM 101-10-2	Staff Officers' Field Manual: Organizational, Technical, and Logistical Data—Extracts of TOE.
TC 1-22	Rotary Wing Aircraft Gunnery.
TM 10-500-6	Airdrop of Supplies and Equipment from Army Aircraft.
TM 55-601	Troop Movement Guide.
TM 57-210	Air Movement of Troops and Equipment.

APPENDIX B

EMPLOYMENT OF NON-AIR DEFENSE WEAPONS AGAINST AIRCRAFT

B-1. PURPOSE

The purpose of this appendix is to—

a. Recognize the threat of enemy airmobile operations, close air support, interdiction aircraft, and air reconnaissance against any unit in a combat theater.

b. Recognize the potential effect of the large volume of small arms fire that can be furnished by organic weapons against low flying hostile aircraft.

c. Reflect the necessity of commanders to establish detailed SOP for the identification and engagement of hostile aircraft to include how identification is accomplished, which personnel will fire, techniques of fire to be used, rules of engagement, and controls to be exercised.

d. Reflect the necessity for training individual soldiers in aircraft identification, techniques of firing at aerial targets, and response to control methods.

e. Emphasize the aggressive engagement of hostile aircraft with organic weapons as specified in carefully prepared SOP and rules of engagement.

f. Recognize the threat to friendly aircraft in failure to discriminate between hostile and friendly aircraft.

g. Place in proper perspective the tactic of withholding fire to preclude disclosure of positions.

B-2. CONCEPT

a. The substantial low altitude air threat faced by units in the combat theater may be partially countered by aggressive use of the large volume of fire which non-air defense weapons can place against this threat.

b. Exercise of the individual and collective right of self-defense against hostile aircraft

must be emphasized. Hostile aircraft include all attacking aircraft and those positively identified enemy aircraft which pose a threat to the unit. The requirement for exercise of this right has not been adequately emphasized in the past. Large volumes of fire from non-air defense weapons have proven capable of destroying both high and low-speed aircraft or disrupting their attack. Exercise of this right does not demand specialized use of communications and air defense control procedures.

c. Indiscriminate use of non-air defense weapons must be prevented due to the resulting danger to friendly aircraft and troops and the requirement to place in proper perspective the technique of withholding fire to preclude disclosure of positions. Effective and safe employment of these weapons necessitates Army-wide training expenditures. Engagement of hostile aircraft in immediate self-defense will be most frequent, and training emphasis should reflect this doctrine.

d. Situations may arise wherein the exercise of the right of self-defense should be temporarily suppressed, or, contrarily, when freer use of non-air defense weapons against aircraft should be encouraged. The former case involves a local decision that prevention of position disclosure is paramount. Notice of such restriction is disseminated through command channels. The latter case should be based on a theater-level decision.

e. Use of a single rule for engagement: "Engage hostile aircraft" is based on the knowledge that common sense interpretations of the rule will be correct. For example, all aircraft attacking the unit and enemy aircraft performing operations such as forward air control, reconnaissance, surveillance, or dropping or landing troops are clearly "hostile aircraft."

B-3. RULE OF ENGAGEMENT

In the absence of orders to the contrary, individual weapon operators will engage attacking aircraft; engagement of all other hostile aircraft will be on orders issued through the unit chain of command and will be supervised by unit leaders. Nothing in this rule is to be taken as requiring actions prejudicial to accomplishment of the primary mission of the unit.

B-4. TECHNIQUES

The following techniques should maximize the destructive and/or deterrent effect against aircraft:

a. Engagement of Low-Speed Aircraft. In accordance with the rule for engagement, engage low-speed enemy aircraft with aimed fire, employing the maximum weapon rate of fire.

b. Engagement of High-Speed Aircraft. In accordance with the rule of engagement, engage high-speed enemy aircraft with maximum fire aimed well in front of the aircraft, and above its flight path, in order to force it to fly through a pattern of fire. This technique is not unaimed "barrage" fire, but requires a degree of aimed fire. It does not, however, call for careful estimation of aircraft speed and required lead.

c. Use of Tracer Ammunition. Automatic weapons should utilize the highest practical proportion of tracer ammunition to enhance the deterrent or disruptive effect.

d. Massed Fire. Units should employ a massed-fire technique when using small arms and automatic weapons in an air defense role.

B-5. SOP ITEMS

Company-level SOP should cover, but not be

limited to, the following items relevant to engagement of aircraft with non-air defense weapons:

a. Applicability. Designate weapons operators concerned.

b. Relation to Primary Mission. The primary mission is never prejudiced.

c. Relation to Passive Air Defense. The necessity for aggressively engaging hostile aircraft is balanced with the requirement to place in proper perspective the tactic of withholding fire to prevent disclosure of position.

d. Authority to Engage. Authority to engage attacking aircraft is delegated to individual weapons operators; authority to engage all other hostile aircraft is granted on orders through unit chain of command, subject to the rule for engagement and the rules for withholding fire.

e. Rule for Engagement. Normally, the rule is for self-defense only against all attacking aircraft and those positively identified enemy aircraft which pose a threat to the unit.

f. Rules for Withholding Fire. These apply when ordered. When not positive that aircraft are actually attacking or are otherwise hostile, and when friendly aircraft or troops are endangered.

g. Position Selection. This is applicable only to weapons specifically assigned an air defense role; e.g., designated single barrel caliber .50 machineguns. (See FM 44-1.)

h. Firing Techniques. These include lead and superelevation, massed fire, and maximum use of tracer ammunition.

i. Unit Training Requirements. These include motivation and discipline and gunnery aircraft recognition.

APPENDIX C

STANDARD CHECKLISTS

Section I. AVIATION COMMANDER'S MISSION CHECKLIST

C-1. Mission

C-2. Alert Unit to Mission

C-3. Establish Liaison with Supported Unit

C-4. Situation

- a. Enemy.
- b. Friendly.

C-5. Supported Units General Concept of Operation

C-6. Reconnaissance

- a. Pickup Zone.
 - (1) Size, shape, condition.
 - (2) Approach, departure routes.
- b. Possible Flight Routes.
 - (1) Start point (SP).
 - (2) Air control point (ACP).
 - (3) Release point (RP).
 - (4) Altitudes.
- c. Objective Area.
 - (1) Selection of LZ.
 - (a) Size, shape, condition.
 - (b) Approach, departure routes.
 - (c) Likely enemy positions.
 - (d) Flight route and LZ photo coverage.
 - (2) Gunship orbit areas.

C-7. Mission Planning

- a. AMTF Commander's Guidance Based on Reconnaissance.
- b. D-day and H-hour.
- c. Allowable Cargo Loads (ACL).
- d. LZ.
 - (1) Number of aircraft.
 - (2) Formation.
 - (3) Fire support plan.
 - (a) Naval gunfire.

- (b) Air Force.
- (c) Artillery.
- (d) Gunships.
- e. Flight Route.
 - (1) RP.
 - (2) ACP.
 - (3) SP.
 - (4) Time, distance, and headings.
 - (5) Fire support and escort plan.
- f. PZ.
 - (1) Times.
 - (2) Number of aircraft.
 - (3) Loading formation (color plates).
 - (4) Location and identification of internal and external cargo loads.
 - (5) Troop load organization of supported unit.
- g. Refueling.
 - (1) Location.
 - (2) Security.
 - (3) Time required for complete refueling.
- h. Troop Lift Schedule (subsequent lifts).
- i. Communications.
 - (1) Supported unit frequency and call sign.
 - (2) Lift frequency and call sign.
 - (3) Gunship frequency and call sign.
 - (4) Smoke and pyrotechnic signals, other color codings.
- j. Pathfinder Support.
- k. Additional Aviation Support Units (i.e., CH-47, CH-54).
 - (1) Utilization.
 - (2) Integration plan (if required).
- l. Reaction Force Requirements.
 - (1) Supported unit.
 - (2) Aircraft required.
 - (3) Laager area.
 - (4) Alert status.
- m. Subsequent Gunship Requirements.

FM 1-20 (TEST)

- (1) Orbit area or reporting place.
- (2) Supported unit(s).
- (3) Call sign and frequency.
- (4) Number of aircraft and relief plan.
- n. Additional General Support Aviation Requirements.
- (1) Logistics.
- (2) C&C.
- o. Medical Evacuation.
- p. Aircraft Maintenance Support.

- (1) Unit.
- (2) Recovery plan.
- q. Proposed Aircraft Release Times.

C-8. Aviation Unit Briefing

- a. Time/Place.
- b. Location.
- c. Units to Attend.
- d. Briefing aids (photo coverage of LZ, flight routes, etc.).

Section II. LIAISON OFFICER CHECKLIST

C-9. Action Prior to Departure to Supported Unit

- a. Obtain Briefing From S3.
 - (1) Current unit status (mission readiness).
 - (2) Mission requirements (supported unit).
 - (3) Specific problem areas.
 - (4) Communications.
- b. Check Out With CO.
- c. Obtain Necessary Equipment.
 - (1) Communications.
 - (2) Maps, overlays, SOI extracts.
 - (3) Transportation.
 - (4) Personal gear.

C-10. Actions at Supported Unit

- a. Establish Communications.
- b. Contact CO or S3.
 - (1) Enemy situation and trend.
 - (2) Mission.
 - (3) Supported ground units.
 - (4) Other supporting aviation units.
 - (5) Pickup zone (time, location, formation, loads, pickup zone, release point, size).
 - (6) En route (start point, air control point(s), formation, communications check-point, landing zones, formation).

- (7) Assault (landing zone release point, landing zones, formation).
- (8) Alternate flight routes.
- (9) Escort procedures.
- (10) Air Force support.
- (11) Return mission and subsequent lifts.
- (12) Communications.
- (13) Fire support plan.
- (14) Refueling.
- (15) Aircraft maintenance.
- c. Disseminate Necessary Information to Your Unit.
- d. Maintain Close Coordination With S3.
- e. Monitor Situation.
- f. Keep Your Unit Informed.
- g. Advise on Employment of Your Unit (be aggressive).

h. Prior to Returning to Your Unit—

- (1) Obtain copies of current operations orders, plans, overlays, SITREPS.
- (2) Obtain times and location of pertinent conferences.
- (3) Obtain information on current situation.

C-11. Actions Upon Return to Unit

- a. Brief the S3.
- b. Check In With CO.

Section III. LIFT UNIT MISSION BRIEFING CHECKLIST

C-12. Task Organization

C-13. Situation

- a. Enemy.
- b. Friendly.

- c. Attachments and Detachments.

C-14. Mission

C-15. Execution

- a. Concept of Operation.

- b. Maneuver.
- c. Fire Support.

C-16. Administration and Logistics**C-17. Command and Signal****C-18. Time Check****Section IV. MISSION DEBRIEFING CHECKLIST****C-19. Estimate of Mission Results**

Degree to which mission was accomplished.

C-20. Enemy Activity Encountered or Observed During Mission

Report in following sequence:

a. Line A—WHO made the sighting or observation (acft; mission number and type of mission, if applicable; patrol, higher or adjacent units)?

b. Line C—WHAT was observed (enemy, unknown, or friendly forces; strength and type of target—tanks, infantry, patrol, bivouac area, include number of items observed and what were they doing—halted, digging in, moving—if moving, include directions of movement)?

c. Line D—WHERE was the activity sighted (UTM coordinates or cardinal point from geographical location in the clear if the report is of enemy activity)?

d. Line E—Were spot (hot) reports made? If so, to whom?

e. Line F—Damage reports (if applicable).

f. Line G—Where was the enemy jamming detected? What evasive action was taken? What time and duration?

g. Line H—Where was imitative communications/deception detected? How was the imitative communications deception detected? What evasive action was taken?

C-21. Estimate of Aviation Portion of Mission

a. Conduct of Operation in the PZ. As planned? Problems?

b. Flight Route and Checkpoints. Adequate? Easily identified?

c. Formation and Altitude. Most suitable?

d. Activity in the LZ. As planned? Alternate?

e. Communications. Adequate? Excessive?

(1) Air-air.

(2) Air-ground.

(3) SOI-SSI.

C-22. Aircraft and Personnel Damage

a. Personnel.

b. Aircraft. What? When? Where? How?

C-23. Refueling and Maintenance Problems**C-24. Lessons Learned****C-25. Recommendations**

APPENDIX D

BATTALION OPERATIONS CENTER

D-1. Mission

The mission of the battalion operations center (BOC), suggested type organization, is to receive and coordinate all tactical missions from higher headquarters and disseminate them to the subordinate organic and attached units for mission accomplishment.

D-2. Organization

The BOC is normally composed of the following:

- a. Officer in charge.
- b. Duty officers (rated).
- c. Operations coordinator.

D-3. Duties of Personnel

a. *Officer in Charge.* The officer in charge of the BOC is responsible for the smooth and continuous functioning of the center. He supervises the daily mission scheduling and insures that available aviation assets are employed effectively to fulfill the mission requirements. He maintains liaison with higher headquarters to insure timely availability of aviation assets in support of preplanned operations. He supervises the preparation of all outgoing reports to higher headquarters concerning aircraft availability and commitments. During tactical operations he normally maintains a detailed situation map so that the duty officers are kept up to date on the progress of the operation with respect to aircraft requirements.

b. *Duty Officers.* The number of duty officers required to operate the BOC will normally be dependent upon the nature of the battalion mission. A duty officer is a rated aviator with a knowledge of the functions of the battalion. He is directly responsible to the BOC officer in charge. His duties may include the following:

(1) Maintaining liaison with higher headquarters with respect to aircraft availability.

(2) Maintaining appropriate records and daily aircraft status reports.

(3) Consolidating mission requests from higher headquarters.

(4) Recording and assigning all missions to the individual company operations.

(5) Monitoring the progress of all assigned missions.

(6) Acting as a flight-following coordinator for battalion aircraft fulfilling mission requirements.

(7) Initiating search and rescue on downed or missing aircraft.

(8) Preparing and forwarding necessary aircraft status reports to higher headquarters.

(9) Maintaining close liaison with assigned/attached operations personnel.

c. *Operations Coordinator.* The operations coordinator works for both the officer in charge and duty officers on matters pertaining to reports, filing, coordination, and liaison. His duties may include—

(1) Preparation of all required administrative reports to higher headquarters.

(2) Maintenance of unclassified files.

(3) Maintenance of flight records of all rated officers and warrant officers assigned to the headquarters company.

(4) Maintenance of and accounting for all receipted equipment in the section.

(5) Assisting the duty officers in other section functions.

D-4. Employment

The BOC is the focal point for all operational matters pertaining to aviation requirements within the battalion. It is the portion of the S3

complex that provides coordination between higher headquarters and organic or attached unit operations with respect to mission assignments. The BOC is responsible for scheduling all aviation assets of the battalion in support of aviation requirements from higher headquarters. It insures timely execution of missions by maintaining close liaison with the individual elements responsible. The section is employed so that assets of the battalion may be readily transferred from one mission to another in order to accomplish a more demanding requirement. In order to do this, a detailed aircraft availability and crew status must be

kept readily available for immediate reference. When the battalion is in support of a unit on an independent mission, without the support of a higher aviation headquarters, the BOC section may be required to act as a flight-following agency. In this case, SOP of the individual battalion involved will dictate the detailed method of operation. Around-the-clock employment of the BOC section insures that the aviation assets of the combat aviation battalion are employed in a manner which lends continuity to mission accomplishment and immediate responsiveness to requirements for recalls.

APPENDIX E

DETAILS OF AGREEMENT, STANAG NO. 3468, GENERAL RULES COVERING THE TRANSPORT OF LOADS BY HELICOPTER

AGREEMENT

E-1. Participating nations agree that the following general rules shall apply when military cargo is carried by helicopters.

DEFINITIONS (for purposes of this agreement only)

- E-2. a. "Helicopter Unit"—The unit operating the helicopters.
b. "User Unit"—The unit owning or preparing the cargo to be carried.

PROVISION OF EQUIPMENT

E-3. The division of responsibility for the provision of special equipment will be as follows:

- a. *Internal loads*
- (1) *Helicopter unit*—Lashing, tiedowns, and any equipment organic to the helicopter unit required exclusively for helicopter transport operations.
 - (2) *User unit*—Pallets, containers and special loading aids.
- b. *External loads*
- (1) *Helicopter unit*—All equipment connected to the helicopter down to and including, the hook to engage to the load and any other equipment organic to the helicopter unit required exclusively for helicopter transport operations.
 - (2) *User unit*—All equipment required to contain or rig the load to enable it to be attached to the helicopter hook.

PROVISION OF PERSONNEL

E-4. The user unit will normally provide specially trained personnel to marshal helicopters to their landing points and for release and pickup of external loads.

E-5. Marshalling signals to be used are set out in STANAG 3117 (Edition No 2.) "AIRCRAFT MARSHALLING."

E-6. The user unit will also provide personnel to load and unload cargo and to hook-up external loads. When necessary, instructions on hook-up procedure will be given by the helicopter unit.

PLANNING AND PREPARATION

E-7. The helicopter unit will be advised on the type, weight and volume of the cargo. The helicopter unit will state which method of carriage is to be employed. If the cargo is to be carried internally, and no crew chief is

carried, a lateral line with a smaller longitudinal line at its middle should be marked on the floor through the mean centre of gravity of the helicopter about which the cargo is to be evenly distributed.

E-8. The user unit will be informed of the type of helicopter allotted, the payload for each aircraft, and method of carriage. The user unit will prepare cargo by aircraft loads and mark the weight and density loading on the complete load and on each individual element to be loaded.

E-9. The preparation and carriage of dangerous cargo should be in accordance with the terms of STANAG 3327 ("AIR TRANSPORTATION OF DANGEROUS CARGO") or current national regulations as applicable.

LOADING

E-10. The user unit is responsible for the correct loading and restraining of cargo in the helicopter and for the hook-up of an external load. If a crew chief is carried in the helicopter the user unit will follow his directions.

E-11. The final responsibility for the acceptance of a load, including the distribution and restraint of the internal cargo, rests with the pilot.

E-12. When the automatic hook-up system is in general service details of the equipment and technique will be included in this STANAG.

UNLOADING

E-13. The user unit is responsible for unloading cargo carried internally.

E-14. The recovery of slings, nets, etc. . . , is the responsibility of the user unit. However, the helicopter unit can assist by back loading in helicopters returning empty.

DISCHARGE OF STATIC ELECTRICITY

E-15. In loading or unloading an internal or external load, if there is danger to the ground loading staff from aircraft static electricity, the responsibility for discharging the static electricity will rest with the ground personnel.

IMPLEMENTATION

E-16. This agreement will be considered to have been implemented when the provisions of the Details of Agreement (para 1-15 above) have been included in the appropriate national standing orders or manuals.

APPENDIX F

REDEYE DEFENSE CONSIDERATIONS

F-1. General

a. The Redeye is a 29 pound, infrared homing, optically aimed air defense weapon that can be carried and operated by one man (FM 44-1A).

b. The Redeye weapon system can provide units with a self-defense capability against hostile aircraft within range and engagement capability. The Redeye weapon system is not a component of an integrated and coordinated air defense deployment. Normally the following engagement rules apply:

- (1) Attack aircraft identified as hostile.
- (2) Attack aircraft committing a hostile act.

c. The definition of a hostile act and the criteria for identification of aircraft will be published by the area air defense commander and will be incorporated in the unit standing operating procedure. For other items that should be covered in the SOP, see paragraph 2g, this appendix.

d. Unless otherwise directed, hostile aircraft within the capability of the weapon should be engaged. To avoid the disclosure of positions, commanders may direct that aircraft not be engaged in some special situations.

e. When permitted by theater rules, commanders in certain situations may direct that the Redeye team engage all aircraft not identified as friendly.

F-2. Employment

a. *Redeye Mission.* The Redeye mission is to provide local air defense of small combat and combat support units.

b. *Organization.* Redeye is employed by two-man teams normally allocated on the

basis of one per combat and selected combat support company/battery/troop. Redeye is assigned to an air defense section in designated battalions/squadrons and designated brigade/regimental headquarters companies/troops.

c. *Defense of the Unit in Position.* Redeye teams depend upon visual means for the detection and identification of targets. The positions selected must provide for maximum observation and unobstructed fields of fire commensurate with associated consideration of likely avenues of approach, the desire to engage the enemy before he can strike the defended unit, and local ground security. At least one gunner continuously performs surveillance of the surrounding airspace, alternating with the other gunner as required. The gunners may be separated by short distances when observation is limited. During periods of intense activity, both may act as gunners, thereby doubling the rate of fire or covering additional avenues of approach. Surveillance is maintained in all directions with emphasis on the expected or most likely direction of attack. Units should prepare detailed SOP for air defense based on Army and theater guidance. These SOP should incorporate provisions for early warning compatible with the unit mission and communications capability. Provision should be made for augmenting Redeye fires with those organic non-air defense weapons, primarily automatic weapons, capable of delivering large volumes of direct fire.

d. *Defense of the Unit During Movement.*

- (1) In a company column, the company commander should place one team member near the front of the column and one near the rear, each with a portion of the available missiles. Appropriate primary and secondary zones of responsibility should be assigned. All-

around observation should be assured, some missiles should be unpacked and ready, and gunners should be ready to dismount quickly.

(2) During movements in which more than one team is involved; e.g., a battalion or brigade move, teams should be placed throughout the column with emphasis on the front and rear. Disposition of the teams within the column is made by the column commander. Route coverage may be improved by directing certain teams to occupy critical points along the route; however, road conditions or column speed may preclude leapfrogging.

(3) The team's 1/4-ton truck with trailer will provide the required mobility in the majority of situations. In certain cases, the requirement for mobility may be such that temporarily dropping the trailer and carrying a reduced load of missiles in the truck itself is justified. When tracked vehicle transportation is mandatory in certain situations, the transportation must be obtained on a priority or share-the-ride basis.

(4) When company elements are greatly dispersed, Redeye positions are chosen in relation to the designated priority company element. During a fluid or dispersed situation, Redeye must usually remain with the priority company element.

e. Control. The Redeye gunner (primary duty) is normally permitted to engage all targets positively identified as hostile or committing hostile acts within the criteria set forth in guidance by higher headquarters. The gunner normally attacks the targets on his own initiative since time and space limitations do not permit the gunner to request permission to fire on any particular target. Unit commanders may impose further restrictions on Redeye fires to prevent compromising the unit location, but under no circumstances will the unit commander allow freedom to fire beyond that established by higher authority. The gunner has no authority to deviate from the established weapon control status, identification criteria, and rules for target selection.

f. Firing Doctrine. The engagement of a low performance aircraft is accomplished by one

gunner firing a single weapon, assessing the results, and firing additional weapons as required. Several high performance aircraft may be simultaneously engaged by both gunners, each firing until the aircraft are destroyed or are beyond engagement range.

g. Unit SOP. The unit SOP for Redeye operators should cover the following as a minimum:

- (1) Mission.
- (2) Command.
- (3) States of alert-manning requirements.
- (4) Weapon control statuses and hostile criteria, to include:
 - (a) Precise definition of terms.
 - (b) Identification criteria and authority to declare an aircraft hostile.
 - (c) Personnel with authority to authorize deviation.
 - (d) Statement that self-defense is never denied.
- (5) Rules for target selection.
- (6) Firing doctrine.
- (7) Fire coordination between team members.
- (8) Communications.
 - (a) Nets and frequency allocations.
 - (b) Discipline and security.
 - (c) Alternate communications.
- (9) Reporting requirements.
 - (a) Warning: air, ground, and CBR.
 - (b) Operational status.
 - (c) Position and displacement.
 - (d) After action.
- (10) Ground security.
- (11) Passive air defense procedures.
- (12) Standard vehicle loading and movement plan, to include measures to increase mobility.
- (13) Logistics.
 - (a) Resupply procedures.
 - (b) Reports.
 - (c) Maintenance.

- (14) Emergency destruction plan.
- (15) Site selection and alternate site selection.
- (16) Safety procedures.
- (17) Training.

F-3. Materiel

The Redeye team is equipped with the following items:

a. Transportation. The team and team equipment are transported in a 1/4-ton truck and trailer.

b. Armament. The team is armed with the prescribed basic load of Redeye missiles. The basic load may be split between the gunners

in certain situations. Each gunner has an M14 or M16 rifle.

c. Communications. An FM radio and telephone are provided to support team operations, and to permit receipt of orders from the unit commander and transmission of the alert to the commander and other elements upon the detection of hostile aircraft.

d. Orientation and Surveillance. Maps, a compass, and binoculars are provided to assist the team in self-location, orientation, and surveillance of the airspace.

e. Decontamination. A decontamination apparatus is carried in the vehicle to permit decontamination following a CBR attack.

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